

*Anxiety
in
elementary
school
children*

A REPORT OF RESEARCH

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Preface

The contents of this book represent six years of research on anxiety in children of elementary school age. Although our research project continues—it is far from finished—there were several considerations which brought us to the decision to write this book. First, in none of our publications had we spelled out the theoretical framework within which we have operated. Consequently, the relationships of our findings to each other, as well as to broader psychological issues, have not been discussed in a manner satisfactory to us. Second, we had a fair amount of unpublished data which we felt could only be evaluated within the context of all we have done. Third, we became increasingly aware that our work had important implications for psychological practices and procedures in the public schools. This awareness was due not only to our interpretation of our formal findings or to the fact that we spent a great deal of time in the school setting but also to the response of various school personnel who felt that our studies could be of great relevance in the development of testing procedures which would be more meaningful than those currently employed in our schools. The final factor entering into the decision to write this book was our inability, for reasons beyond our control, to remain together as a research team. We have worked intimately together for several years, all of us participating in the over-all planning, the design of the many studies carried out, and in the innumerable meetings in which we hashed over the significance of our findings. At the same time that it became apparent that we could not remain together as a research team, we realized that we had to integrate our work in one place before some of us had to leave.

We assume that our work will be of interest to clinical and child psychologists, psychiatrists, and others in the behavioral sciences. However, there is a much larger group of professional people whom we wish to reach but whose points of contact with the behavioral sciences are, in our opinion, far less than they should be. We refer here to a variety of people in education: school psychologists, guidance personnel, teachers, and administrators. As we indicated earlier, when we have presented our research to these workers they have supported us in our belief that our work has relevance for testing programs in our schools. We hope, therefore, that this book will reach and be reacted to by those professional workers.

We have indeed been fortunate in the degree of cooperation we have received from administrative personnel in various school systems. We wish to express our deepest thanks to Dr. Elmer Hagman, Director of Research in the Greenwich schools; to Mr. Joseph Foran, Superintendent of Schools in Milford, to Mr. David Wyllie, Superintendent of Schools in Hamden, and to Mr. Charles St. Clair, Superintendent of Schools in North Haven. We are also indebted to the many teachers and principals in these school systems who facilitated our efforts in innumerable ways. There are four people to whom we are especially indebted for their counsel at many points in our research: Dr. Robert Abelson, Dr. Irving Sarnoff, and Dr. John Doris of Yale, and Dr. Irving Zwibelson, who was until recently school psychologist in Milford. It is a real source of pleasure to acknowledge and thank the following research assistants not only for their labor but for their ideas: Cynthia Fox Dember, Joan French, Iris Keim, Joao Bliss, James Barnard, Doris Kraeling, Esther Post, Isabelle Davidson, Nancy Feinstein, and George Rosenwald. Finally, we wish to thank Mrs. Susan Henry, who, as usual, did a magnificent job of typing from somewhat illegible script.

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Introduction

CHAPTER I

THIS book is essentially concerned with an extremely broad and important problem: the relationships and discrepancies between performance and potential. It is no exaggeration to say that the relationship between what man does and what he is capable of has always concerned the thinker and scholar regardless of his field. This is not surprising when one considers that these relationships touch upon the even more general problem of the nature of man. Cultures, now and in the past, differ tremendously in their attitudes toward man's potentialities as well as in their concern with the development of such potentialities. In many cultures the problem has been viewed only in terms of a select few from whom distinctive performance is expected. In our own culture, however, the problem has been viewed as one involving all its citizens, i.e., each individual should have the opportunity maximally to develop his potentialities. In fact, in all periods of our history there have been those who have maintained the extreme position that everyone is capable of a high level of achievement and that the failure to achieve such levels is primarily due to factors external to the individual. It is probably correct to say that the heat which has accompanied the heredity versus environment controversies is due in large part to differences in conception of man's inherent potential; i.e., what is viewed by some as an obvious discrepancy between potential and performance is viewed by others as no more than a predicted degree of congruence.

Although we view the contents of this book as being related to the broad problem of the relationships between potential and performance, the scope of the research to be presented and discussed can, at best,

illuminate a small part of the problem. The fact that anxiety has been considered by personality theorists as an important factor in producing discrepancies between potential and performance does not, unfortunately, mean that the job of the researcher is made easy in the sense that he can start with other than a limited attack on the problem. Ambiguities in theoretical formulation, the absence of validated methodologies, the paucity of previous systematic research—these are the reality factors which force upon the researcher the necessity of a limited, step by step approach. To the extent that these reality factors affected the development of our research, they have also influenced the organization of this book.

In Chapter 2 of this book we endeavor to explicate the theoretical framework within which we have thought about anxiety. It will be apparent in this chapter that we have restricted our thinking in at least two ways. First, we are concerned with anxiety in children, particularly elementary school children. Second, we have posed the problem in terms of a relatively specific anxiety, i.e., anxiety about test and test like situations. In focusing on test anxiety we have assumed that whatever understanding of that anxiety we may gain will have significance for our understanding of anxiety in general.

Chapter 3 contains a review of the literature in an attempt to ascertain in the light of previous work the status of the hypotheses presented in the theoretical discussion of Chapter 2. This attempt was made difficult, if not hazardous, by the lack of systematic studies of specific anxieties. Another difficulty in viewing our thinking from an historical perspective is that much of the previous work has been concerned with children's fears, raising the knotty question of the relationships between concepts of fear and anxiety. This difficult problem is reviewed and discussed in the first part of the chapter in terms of theory and methodological implications.

In Chapter 4 we present the two scales of anxiety which we have used in our research. The first is the Test Anxiety Scale for Children (TASC) and the second is the General Anxiety Scale for Children (GASC). The rationale of the format of these scales and their development and administration are discussed. However, one of the most important and difficult problems involved in using paper and pencil questionnaires is discussed separately in Chapter 5. We refer here to the identification and measurement of those tendencies, conscious and unconscious, which are sources of error in self reports. We considered this problem to be of such significance that we felt it necessary to view it historically, to present our own initial efforts in attacking the problem, and to attempt a reformulation which seems more fruitful and

consistent with theory than previous statements by ourselves and others

Chapter 6 presents a series of studies, carried out in the initial years of this research project, bearing on the validity of our scales. It was the results of these studies which encouraged us in the belief that our scales had a significant degree of validity and could serve as a basis for studying the hypotheses presented in Chapter 2. The fact that our scales differentiated high and low anxious children in predictable ways in criterion test situations not only was important for our theoretical conceptions but also for the practical problem of identifying discrepancies between potential and performance in children in their early school years. Although our primary interest was in testing a theory of anxiety, we realized that whatever contribution we could make on that level would have important bearing on the very practical problem of devising group procedures for picking out children in whom there is or will develop a discrepancy between performance and potential.

Whereas the initial validity studies presented in Chapter 6 involve group testing procedures, Chapter 7 contains a series of studies using face to face situations with the purpose of determining the conditions in which anxiety may have interfering or facilitating effects. It is important to note here that our conception of the anxious child (Chapter 2) is one in which the problem solving efficiency of such a child is unusually dependent upon the nature of the interpersonal context in which he finds himself. Put in another way, the problem solving effectiveness of the anxious child is dependent far more on "what is presented" and "how it is presented" to him than it is on such positive characteristics as adaptivity, flexibility, and creativity. The anxious child, in contrast to the low anxious child, is more vulnerable because he is more dependent on how other people structure their relationship with him.

In Chapter 8 we present and discuss the results of interviews with parents of high and low anxious children. This chapter in particular is a good example of what occasionally happens in research: unanticipated findings limit the degree to which one can evaluate one's hypotheses but fortunately, open up unexplored areas of research. We refer here to two findings: (a) there is a significant discrepancy between mothers and fathers in their ratings of their children and (b) interview data from mothers of high anxious children at least, contain various distortions which if not detected mask expected and significant findings. The significance of these findings is obvious when one realizes that the data contained in many studies of child development

were obtained from mothers only and with no built in means for detecting the presence of defensiveness during the interviews

It is in the first section of Chapter 9 that we address ourselves to findings relevant to hypotheses about the relationships between anxiety and personality variables, e.g., dependence, aggression, etc. The second section of this chapter is concerned with sex differences. In the course of our studies a pattern of sex differences has emerged which in a basic sense must represent the starting point for future studies and theorizing about the relationship between anxiety and personality variables

Because our research involved elementary school children exclusively, it is not surprising that we have come to various conclusions about the significance of our research for current psychological procedures in our public schools. These conclusions stem not only from our formal studies but from innumerable informal observations made in the course of spending a great deal of time in the school setting. In Chapter 10 we present and discuss our opinions and conclusions in some detail. In doing so we realize that we are going beyond our data, but this requires no special defense. We are of the opinion that our own conclusions have a more solid basis in fact than the conclusions which have given rise to most psychological procedures currently employed in our schools. In any event, we consider it an obligation to share with others our conclusions about an area of psychological practice with children which is of great significance for the child and our society.

Attention should be drawn here to a series of studies which, in the initial organization of this book, were put into a separate chapter but are now to be found in Appendix A. These studies concern an unanticipated finding which we have termed the "position effect" the ways in which scores on our two anxiety scales (Chapter 4) vary as a function of whether a scale is administered in first or second position. Pursuing this finding led us to attempt to evaluate the time interval between the two scales, teacher versus stranger administration, and sex differences in magnitude of the position effect. Consequently, these studies have a bearing on the contents of several of the chapters. However, it became apparent to us that if these studies were adequately described and discussed in a separate chapter this would seriously interfere with the continuity of the book. In attempting to discuss these studies meaningfully in those chapters where they were relevant, we again concluded that this could only be done at the sacrifice of continuity of focus within those chapters. Our final decision was to place these studies in an appendix and to call this to the attention of the reader at appropriate places in the main body of the book.

Hypotheses

CHAPTER 2

In psychology within the past decade there has been an unusual degree of interest in the concept of anxiety. It is probably not fortuitous that this period also witnessed the somewhat spectacular rise of clinical psychology as well as attempts to understand more comprehensively the human personality. We are not aware of any systematic conception of personality, particularly with regard to its development, which does not give the concept of anxiety a role of great, if not of central, significance.

Long before anxiety became a focus of study for psychologists, its significance for practice and theory had been recognized and explored within the framework of psychoanalysis. It was not until after World War II that psychoanalytic theorizing began to have a pervasive impact upon psychology (as well as upon psychiatry) and it was to be expected that a concept of central importance to psychoanalytic theory would become an object of research. However, the conception and manipulation of anxiety as a *research variable* has taken place both *within and without the framework of psychoanalytic theory*. The research to be reported on in this book employs concepts, or reflects a way of thinking, which clearly indicates the rather direct influence of psychoanalytic theorizing. As will be seen later, our thinking in regard to our criteria of anxiety, its developmental correlates, its conscious and unconscious significances, its relation to certain attitudes toward self and others, and its various overt and covert manifestations has been more rather than less within the psychoanalytic framework. Unlike the time when psychoanalysis was synonymous with what Freud wrote, it is no longer possible to talk of psychoanalytic theory

as if it were a simple theoretical package which one did or did not buy. There are now various psychoanalytic theories which, despite important differences among them, have a distinctive common core (Monroe 1955). They differ, but they share, so to speak, a common ancestor. It is in this sense that we have characterized our thinking as psychoanalytic. The significance of unconscious contents and processes, the inevitable conflicts between the internal world of the child and external reality, the importance of such conflicts for the shaping of the child's conception of himself and the external world, the dynamics and vicissitudes of defensive reactions to conflict—these are some of the processes and problems with which psychoanalytic theorizing has attempted to deal and as a consequence influenced our own view of the specific problems in which we have become interested.

The most obvious manner in which our thinking has been influenced by psychoanalysis will be seen in our conception of the anxious response as a conscious danger signal associated not only with an external danger but also with unconscious contents and motivations the conscious elaboration of which is inhibited or defended against because such elaboration would place the individual in an even more dangerous relation to the external world. When one conceives of anxiety in this way, it is clear that an understanding of the anxious response involves one in a series of questions concerning the nature of and relationships between present and past experiences of the individual. When later in this chapter we ask a series of questions about anxiety in test situations, it will be seen that the questions are a function of the conception that anxiety signifies a relationship between a present danger and unconscious but concurrently active contents and processes deriving from previously unresolved conflicts. It perhaps should be emphasized that this conception of anxiety forces one to focus initially on the conditions in the here and now which maximize or minimize the likelihood that the anxious response will occur. The more one understands how anxiety varies under specified conditions, the more secure one feels in hypothesizing about the nature of unconscious contents and the matrix of developmental factors and conditions from which they derive. In fact, most of the research presented in this book is concerned more with how anxiety varies with present or current conditions of stimulation and less with its unconscious or developmental correlates. Our conception of the nature of such stimulation was of course influenced by our speculations about such correlates. We felt, however, that if these speculations received support by our attempts to manipulate current conditions of stimulation, we would not only feel more secure about these unconscious and develop

mental correlates but we could then study them in a more focused manner. For example, if we could demonstrate that when the strong dependency needs of the test anxious child are gratified his level and quality of performance do not reflect the interfering effects of anxiety, we would feel more secure about the hypothesis that the anxiety is in part related to or an outgrowth of particular kinds of parent child relationships.

In the remainder of this chapter we attempt to make explicit our own thinking about anxiety in children in the hope of conveying to the reader some idea of why we proceeded as we did in our research. In making such an attempt we are not assuming that the aspects of the problem we have studied could only have been derived from the kind of theorizing we did. To make such an assumption would mean that we perceive our thinking to have a degree of precision and systematization which in fact it does not have, it would also imply that there are sufficient empirical data to justify the decision that a particular way of approaching the problem and interpreting data is better than any other way, an implication which we clearly do not intend. But we did set up our research from a particular theoretical vantage point and to the extent that predicted findings were obtained it says something about the fruitfulness of the approach.

TEST ANXIETY AS THE INITIAL FOCUS

Although anxiety is a central concept in theories of personality development, an understanding of its antecedents, nature and consequences cannot be said to have been greatly illuminated by the research which has been done. One of the reasons for this state of affairs has been the tendency to study individuals who have been labeled as "anxious" but who may differ widely in what they are anxious about and even in the number of situations in which they are anxious. The use of such clinical groupings seems to rest on the implicit assumption that the individuals within the group are anxious about similar things to similar degrees from the time of waking to that of sleeping. A cursory study of individuals who have been labeled as generally anxious or with "anxiety neurosis" would reveal how unjustified such an assumption is. The situation is only a little better when groups are chosen according to the number of times they admit to anxiety on a questionnaire containing a set number of situations in which anxiety may be experienced, each item referring to a different kind of situation. Even here the same score on two individuals may reflect

a different pattern of anxieties. With such an instrument it is assumed that the different anxieties are equivalent in terms of developmental antecedents and behavior consequences. If one does not make such an assumption, then one is unjustified in considering the same score to have the same behavior significances and consequences. Still another weakness of such instruments is that no one anxiety is studied in depth, a weakness which robs one of the possibility of determining the interrelationships among apparently different anxieties. We may assume that different anxieties have an experienced affective component in common but this helps us little or not at all in understanding what other similarities may exist among anxieties which are manifestly different in content. We might put our opinion in this way: until different anxieties are studied in depth one will be unable to make statements about the general significances of anxiety however it may be manifested. Consequently, in proceeding with our research we decided to focus initially on a relatively specific anxiety in the hope that the study of anxiety in a particular situation would enable us to shed some light on the origin and effects of anxiety in other situations, as well as the common anxiety arousing aspects of these situations.

Several considerations influenced our decision to focus initially on test anxiety in children.* The first of these considerations was that the test situation is experienced by almost all members of our society. Not only is it a near universal experience in our culture but the test situation is frequently experienced for some members of our society (such as those who read this book). A second consideration was that both the tester and testee (be it an individual or group test situation) far more often than not perceive the testing situation to have an evaluative or assessment purpose and that it is important to do well, however differently "well" might be defined by tester and testee. A third consideration was the fact that in our culture the lives of people are very frequently affected by their test performance. It is not hyperbolic to maintain that quality or level of test performance is one of the most important determinants of the lives of members of our society. We are a test giving and test conscious culture.

Because the test situation has the above characteristics, it does not follow that it is appropriate for the study of a specific anxiety which might allow one to gain insights about the general properties of anxiety. What was decisive in our decision to focus on test anxiety was

* In point of fact, a number of studies had been carried out at Yale on test anxiety in college students previous to our work with children. The considerations to be discussed apply to the college as well as the children's studies.

our clinical experience that such an anxiety was not only frequent but was also associated with severe personality disturbance and concomitant difficulties in the school learning situation. Put in another way, the test situation frequently evokes the anxious response at a strength which should allow us to evaluate our theoretical conceptions about the significance of anxiety.

Although our interest in test anxiety was primarily in terms of evaluation of theory, we also felt that the study of such a reaction would have practical implications for clinical practice and research methodology. More specifically, we felt that the study of test anxiety would have relevance for the development of methodologies whereby attitudes toward test-taking can be identified and their effects on performance and behavior evaluated. On the practical side, such a methodology is important if for no other reason than that it may enable us to evaluate test performance in a more comprehensive and valid way. When one considers the mass manner in which tests are frequently given, precluding the possibility of observing test behavior, it would seem to be only fair (a not unimportant consideration) also to obtain other data which might put the test performance in another light. In these days when our society seems to have become aware of the problems of creativity, wasted talent, and early diagnosis of personality disturbance, the psychologist must seriously consider methodologies which, on *a priori* grounds, give some hope of sharpening our diagnostic and predictive statements about individuals. The practice in the past has been to increase the level of validity of prediction by developing more and new tests, a practice which in itself is certainly appropriate. However, in the light of what we have discussed above, such a practice would seem to make the study of test-taking reactions even more pressing.

From the standpoint of research methodology the identification of test-taking reactions would seem to be of great importance. Psychological research with human subjects very frequently involves a test or test-like situation and it is the rare researcher who does not agree that his subjects do vary in the attitudes about tests which they "bring with them" to the situation, as well as how they perceive the situation once they are in it. Once one concludes that such attitudes may be relevant to performance in the situation—which is to say that they are in some ways related to the variables under study—they cannot be ignored and should be systematically taken into account. Let us say that we are interested in sex differences in problem-solving. Traditionally one may vary on the stimulus side the nature of the problems and, sometimes, the instructions. On the subject side one may control for

intelligence, age, or social class. Let us then assume that significant differences between the sexes are found. If, for example, the two sexes differ in the level of test anxiety and the researcher is unaware of this difference, it is certainly conceivable that his interpretation of the findings would at best be incomplete and at worst, wrong or misleading. In this type of study, selection of subjects within each group or subgroup in a random fashion insures against bias (e.g., insofar as intelligence, age, or social class is concerned) but does not or may not result in the control of test taking attitudes.

The use of the test situation in psychological research to study certain variables (e.g., intelligence, aggression, conformity, etc.) very likely introduces factors which affect the strength and manner of expression of the variable under study. To the extent that the variable is affected by the situation in which it is being studied it can affect the degree of correlation with that same variable as measured in a criterion situation. If aggression is measured in a test or test like situation (e.g., TAT, "hostile" instructions, frustration by examiner or experimenter), its correlation with aggression in a criterion situation will depend, among other things, on how similar the latter is to the former situation in the attitudinal factors which are aroused. We are here not maintaining that the degree of correlation will largely be determined by the considerations discussed above. It is our opinion that these considerations are important and that they have been unjustifiably ignored in discussions of the problem of prediction where the question "from what and to what" one is predicting should compel one to pay some attention to similarity in perception of the situations by the subject (Sarason, 1954).

In summary, then, there were two major reasons for focusing on test anxiety. First, the test situation frequently evokes the anxious response *at a strength* which should allow us to evaluate our theoretical conceptions about the significances of anxiety in the organization and development of personality. Second, if test anxiety is an important and frequent response to the test situation, then the development of a valid methodology for its assessment would have relevance for the general problem of the nature and effects of test taking attitudes and reactions.

SOME INITIAL HYPOTHESES

Why should a child be unduly concerned about how well he will do in school? about being wrong when called upon to recite or to

perform at the blackboard? about being promoted? about not understanding what the teacher is saying or expects of him? Why should such a child experience the test and test like situations as markedly unpleasant tinged with more or less vague feelings of uneasiness and bodily tension? The child who characteristically responds to test like situations in these ways we shall call anxious. In addition, we shall assume that such a child is more or less aware that whatever he is experiencing involves unpleasantness and tension (In the most blatant cases the bodily reaction manifests itself in vomiting or incontinence.)

The child whom we have just described fits not only the popular conception of the anxious reaction but more important for our purposes, also possesses the three attributes of anxiety discussed by Freud (1949, p. 70) (1) a specific unpleasurable quality (2) efferent or discharge phenomena and (3) perception of these. These attributes are descriptive in nature and tell us little or nothing about the purposes or functions of anxiety. For example, the third of these attributes states that anxiety is a conscious experience but is unrevealing of the relationships of this experience to internal and external events. However, before discussing these possible relationships it would be fruitful if we pursued further the kinds of questions raised about the test anxious child in the previous paragraph.

In attempting to begin to answer the above questions we might ask still another question. Would this child experience anxiety if his performance was not being evaluated by the teacher or examiner—by an adult whom the child perceives as a person of authority from whom a negative evaluation would arouse more than feelings of disappointment? In the many test like situations experienced by the child in the classroom their test like character is in general determined by the teacher. We assumed that without the presence of the teacher the child would not experience anxiety (which is often the case when the regular teacher is absent and there is a substitute for the day). The teacher is, of course, an important person for all children in her classroom, but for the test anxious child she possesses an unusual degree of importance and power which, so to speak, is granted her by the child. It is, in fact, the strength of this child's reaction which suggests a further important characteristic of the anxious reaction: it is disproportionate to the external situation. We are probably all familiar with the college student who approaches each test situation with anxiety despite the fact that he has always done well on tests. On interrogation such a student can give a variety of reasons for his reaction—some of them may have a kernel of truth—but one is still left with the impression that his explanations do not account for the

strength of his response. Similar observations have been made in much younger children. Even where children have a history of doing poorly in test and test like situations one is faced with the problem of why some respond anxiously and others do not. Some children respond as if they anticipate and accept a certain level of performance, and others respond as if in a catastrophic situation which they have not experienced before. It is as if in the former group the consequences of failure in terms of reactions from others are not threatening, whereas in the latter group of children they are highly threatening.

It is the disproportionate characteristic of the reaction which suggests that the descriptive attributes of anxiety are but indicators of a more complex set of relationships between internal and external events. The test anxious child can relate his affective experience to certain external objects and events, i.e., he can "explain" his anxious reaction, but he is unaware that his reaction signifies the concurrent strength of certain unconscious ideas, motivations, and anticipations. The behavior tells or expresses to us more than the child is aware of. What is implied in this formulation is that the child's reaction to the test situation has been determined by previous test like experiences in and out of the classroom. The most important "out of school" situation in which a child experiences evaluation by others—evaluation of the quality and quantity of performance by adults whose judgments are important to the child—is the familial one. We assume that there are countless times in the familial situation when a child's behavior elicits reactions from parents which shape his conception of himself as a performing individual. The behavior of every child is continually and explicitly evaluated by parents as adequate or inadequate, good or bad. Many of the situations giving rise to such evaluations may appear to be far removed from the usual conception of the test situation, but to the extent that the child perceives the situation as one in which others will pass judgment on his adequacy, it is clearly a test-like situation. In fact, one of our hypotheses is that the unconscious significances of the test anxious reaction concern the child's experiences in these test like situations in the family, experiences which for the most part antedate the beginning of formal schooling.

The importance we earlier gave to the role of the teacher in the test anxious reaction is based on a number of similarities between teacher and parents. Like the parents the teacher is an adult who is in a position of authority, sets goals for the child and evaluates his behavior in regard to them, and has available to her a variety of rewards and punishments by which she can affect the child. In addition, not only do parents attempt to influence the child's behavior to-

ward the teacher, but the latter frequently attempts the same thing in relation to the former. With the rise of parent-teacher organizations the similarities between school and home have been made even more pronounced for many children than was true two or three decades ago.

Thus far we have stated two hypotheses:

1. The reaction of the test anxious child to test and test-like situations in the classroom reflects his experiences in psychologically or interpersonally similar situations in his home both before and after the beginning of formal schooling.

2. The test anxious reaction has, in addition to its conscious significance, a concurrent unconscious significance which primarily relates to what has been experienced by the child in the family situation.

ANXIETY AS A DANGER SIGNAL

The second hypothesis stated above raises the problem of the relation between the experienced anxiety and the unconscious tendencies which have been activated. Central to our conception of this problem is the assumption that anxiety is a danger signal indicating that the situation has increased the strength of certain ideas, wishes, or phantasies which, if allowed conscious expression and elaboration, might result in behavior toward and from others which would seriously endanger the child's well-being. The danger relates both to the child's tendencies as well as those anticipated from others. What is implied here is that the unconscious material is at variance with the child's conscious set of values and therefore must be kept out of awareness. Viewed in these terms anxiety is also a signal or a stimulus activating those processes which have as their major effect "keeping the unconscious unconscious."

We may now rephrase some of the questions we asked earlier in the following manner: What are the unconscious but active significances of the test anxious reaction? What are the unacceptable tendencies of which the anxiety is a signal, and what would be anticipated from others if these tendencies were to come into awareness and serve as a basis for action? The following hypotheses represent an attempt to answer these questions:

1. One of the aspects of the matrix of unconscious factors related to the test anxious response is strong hostility toward parents and sur-

rogates whose evaluations of the child's performances elicited in him hostility which could not be satisfactorily expressed. If the hostility was expressed, it was punished, if it was expressed in phantasy, it resulted in conflict with positive feelings toward these figures. It is the sense of this formulation that the instigation of hostility in the child by parental behavior has taken place over a period of years, during developmental periods when the child is relatively unable to regulate the strength of response to instigated hostility (a kind of all or nothing mechanism) at the same time that the disparity of strength between parent and child is greatest.

2 Parental handling of the child's hostility may have various effects on the child's attitude toward such hostility, but the most frequent effect is to produce the experience of guilt over his hostility, an effect which is reinforced by the strong positive feelings the child has toward his parents. To the extent that this hostility can be kept unconscious the child avoids the upsetting experience of guilt, i.e., the awareness of how "bad" he is. We assume that in the case of the test anxious child parental handling resulted in inordinately strong hostility and that attempts to defend against its expression were unsuccessful to the degree that it did not avoid the upsetting experience of guilt.

3 The concurrent conscious experience of hostility and guilt makes it likely that the child's attitude toward himself will contain a consciously derogatory flavor, especially if, as in the case of the test anxious child, his hostility and guilt are aroused in situations in which judgment is being passed on his adequacy, i.e., situations in which some assessment is made of the disparity between the child's behavior and parental expectations. What is implied in this formulation is that the test anxious child is one who derogates his own worth and tends to direct aggression toward himself rather than others, a self attitude which bespeaks the strength of the unconscious hostile tendencies toward others.

4 Another of the unconscious factors increased in strength in the test anxious reaction concerns unconscious phantasies about the consequences of directing strong hostility toward parents. Essentially these are unconscious phantasies of retaliation on the part of the parents—what they will do to the child in response to his hostility—as well as of being in a state of abandonment and helplessness, i.e., a state in which his dependency needs will not be satisfied. It is, in fact, this perceived threat to the fulfillment of his dependency needs which not only serves as a control against the overt expression of hostility but also motivates behavior which will insure the possibility of satisfaction of his dependency needs. As a result, the dependence of the child

on parents for approval, direction, and support becomes a dominant tendency. This in turn would have the effect of inhibiting the child's spontaneity and creativity. Conforming to the expectations of others is, however, in the case of the test anxious child, no stable solution because, it is assumed, his relations with adults are such that his hostility is frequently being aroused in situations where negative judgments about the adequacy of his behavior are being made—and a kind of vicious circle of behavior starts in again. It is important to emphasize that this vicious circle consists not only of the child's repeated efforts to stabilize his conflictful relationship with his parents but also the parents' erroneous perceptions and conceptions of the significances of those efforts.

In the above hypotheses we have characterized the test anxious child as one who observationally or in terms of self report would appear as dependent, unaggressive, and self derogatory in test like situations. It should be made clear that we are not maintaining that all test anxious children would appear like this. In some cases, for example, we would expect that the defensive processes were more or less unsuccessful in keeping the strength and direction of hostility from awareness and that this failure would be related to a personality picture different from that given above. In other words, while we would expect the majority of test anxious children to possess the characteristics described above, we recognize that there would be differences in how children have reacted to and handled early test like, interpersonal situations in which negative judgments were made by parents or perceived by the child.

It probably will have been noted by the reader that in our formulation we have been more specific about the personality characteristics of the test anxious child than about parental behavior. What we have said is that in many of the interactions between parent and child the parent judges the child in terms of expectations or values, interactions which are psychologically similar to what is usually but narrowly conceived of as the test situation. Put in another way, although the narrowly conceived test situation and early parent child interactions with an assessment quality appear phenotypically different in several ways, we consider them to be genotypically similar. Our failure to be specific about parental behavior is due to several factors. First, clinicians and teachers have had more direct experience with the test anxious child than with his parents. Second, there has been little attention to preschool parent child interactions from the standpoint of their test like quality, i.e., viewing them as instances in which assessment of quantity

and quality of the child's behavior is made. Third, there is undoubtedly great variation in the kinds of parental behavior and familial patterns which are historically related to the test anxious response. Although we have not been as specific as we would like about the parental variable, we have said or implied several things about it. In a most general way we have indicated that the test anxious response cannot be understood without taking account of parental behavior. We have also indicated that this behavior involves judgments which are not only perceived by the child but arouse strong hostility in him. Also, the expression of this hostility is strongly punished in different ways (e.g., verbally, physically, withdrawal of love and approval). Finally, dependency behavior on the part of the child is strongly encouraged and rewarded by the parents. What is implied in this discussion is that at some point there is a break in communication between parent and child. The arousal of conflict in the child and the subsequent misperceiving or mishandling by the parent of the child's problems lead to some impairment of communication between child and parent.

ANXIETY AND BODY IMAGE

In the previous section we hypothesized that the test anxious child is one who has developed a derogatory attitude toward his personal worth and adequacy. But what is meant or implied by the phrase "attitude toward *himself*"? When this question is asked about an adult, it is quickly realized that a number of different replies are possible because he performs in a wide variety of activities and within each activity (e.g., vocational) may perform more than one role. This is not to say that there may not be a general attitudinal factor underlying the different roles. The important point is that the adult has different kinds of self attitudes and that he perceives them as different (e.g., "I'm a lousy golfer but an excellent poker player," "I'm a careful driver but a sloppy painter," "I may not be a genius but I certainly know how to handle people"). The adult's conception of himself is a very complex and differentiated organization of attitudes so that changes in a particular attitude toward self may have little or no effect on other self attitudes. In the case of the very young child, however, he has fewer and less differentiated attitudes toward himself and, we assume, they are much more clearly interrelated than in the case of the adult. Consequently, if a child has developed or is developing a conception of himself which is derogatory, it will tend

to have a generalized effect. In such a child this kind of self attitude will, therefore, affect his conception of his own body (its integrity, adequacy, and functions). To a very young child "himself" is intimately related to his conception of his body. Having hypothesized that the test anxious child is one with strong self-derogatory attitudes, we would expect that his conception of his own body would be similarly regarded.

There is an additional factor which would reinforce the tendency for the test anxious child to regard (or to have regarded at some earlier time) his body as in some way inadequate, in attitude which in itself would be expected to be anxiety arousing. It will be remembered that we hypothesized that the test anxious child is one in whom strong hostility has been engendered the objects of which were his parents. This hypothesis raises two highly related questions. When the very young child experiences hostility toward another person, what does he wish to do to that person? When this same child anticipates a strong hostile reaction from another person, what does he think that person will do to him? In answer to both questions we assume that infliction of bodily injury is perhaps more readily observable in relation to the first than to the second question. It is sometimes difficult to believe that a young child will anticipate bodily injury from parents who have never or rarely used physical punishment with the child. The difficulty here is the implied and unproved assumption that the tendency on the part of the child to wish to inflict physical injury is a direct and sole function of similar behavior on the part of the parent. In any event, we assume that all young children in varying degrees interpret the behavior of parents as threatening and punishing and as we have already indicated this will frequently be interpreted in terms of bodily injury and pain. Where parental behavior continually instigates strong hostility, as in the test anxious child the retaliatory behavior which he anticipates will we hypothesize, involve anxiety about bodily integrity. Much of this anticipation of bodily injury suffers the same fate as the externally directed hostility, i.e., it takes on the characteristics of unconscious contents. Derivatives in awareness undoubtedly exist in the form perhaps, of negative self attitudes in regard to strength, size, physical attractiveness, motor agility, and bravery.

In brief, then, our hypothesis is that in the test anxious child of school age the anxiety he experiences in test situations is a danger signal that certain phantasies about bodily injury (i.e., mutilation phantasies) are near the threshold of awareness—phantasies intimately related to his own externally directed hostility.

TEST ANXIETY AND OTHER ANXIETIES

In characterizing the antecedents of the test anxious response we have focused on certain aspects of parent-child relationships. On the parent side of the relationship we have maintained that they communicate in various ways to the child an attitude which has two major effects: (1) it devalues the adequacy of the child's behavior or performance, and (2) it renders the child relatively incapable of expressing overtly the hostility engendered in him.* What we wish to emphasize now is that there are different ways (e.g., facial, verbal, motor) in which such attitudes or judgments can be expressed and, in addition, each of these ways may be utilized by parents in different contexts. Although we are far from understanding the mechanisms, we assume that there are stimulus contexts which have varying degrees of similarity to those involving the parents so that they become capable of producing similar effects in the child. We have already pointed out that in the older child the teacher operates as and in a stimulus context very similar to that experienced by the child with his parents. In other words, the object and place of occurrence of the test anxious reaction are superficially different from its previous object and place of occurrence, although dynamically they are similar. In some test anxious children the beginning of school may elicit a variety of anxiety manifestations (e.g., phobias, separation fears, somatic upsets) which are either quite different from previous behavior or appear with such intensity that they are looked upon as "new" behavior even though subtly present previously. We might put our thinking in this way: both before and after the beginning of school the test anxious child experiences many situations, involving parents and others, which have the effect of exacerbating the conflicts previously described. These situations may appear to be very different from each other, and the ways in which the anxiety is expressed may also differ, but they are similar in the kind of reaction pattern (involving conscious

* There are many instances where parents devalue the performance of the young child but where avenues of expression of the engendered hostility are available. These children do not feel strong guilt about their hostility, i.e., parental behavior may be critical of the child but not have other attributes which produce the guilt reaction. We have seen in some of these instances a kind of indifference to parental behavior—in marked contrast to the test anxious child who becomes overdependent on and overconforming to parents as a way of coping with guilt, hostility, anticipated retaliation, and helplessness in the sense that he will be in a situation where his needs cannot be gratified.

and unconscious aspects) they covertly have elicited. One would expect, therefore, that the test anxious child will be found to be anxious in many situations.

Aside from considerations of stimulus similarity, there is the possibility that response similarity increases the number of situations in which the anxious reaction appears. For example, we have said that the test anxious child is one in whom strong hostility toward parents has been engendered but about which he has also had strong guilt. If this child interacts with a peer in a non test situation and for some reason experiences strong hostility toward this peer, his hostile thoughts and impulses may result in the same kind of conflict as when this hostility was and is experienced toward parents. Whatever elicits hostility may become involved in the development of anxiety symptomatology even though it is clearly not a test or test like situation. Similarly, in the test anxious child in whom we have hypothesized a concern about body adequacy, any external object or situation which raises the possibility of bodily injury (e.g., skating, bicycling, scaling heights, diving, touching sharp or pointy objects) may become a focus of anxiety.

Many times it is difficult to understand the interrelationships among anxieties solely in terms of stimulus or response similarity. It is our contention that it is necessary to consider not only the observable stimulus or the verbal response (in the form of self report) but also the possible unconscious factors which have been increased in strength either by the external stimulus or conscious response. It is the concurrent activation of these unconscious factors that affects the child's perception of the situation. When the test anxious child experiences strong hostility toward a peer in a non test situation, the conscious hostile thought or impulse may not only become associated with unconscious hostile tendencies toward parents but with all other (equally unconscious) factors which previously made the expression of hostility a dangerous and anxiety arousing experience.

The need to consider the role of unconscious factors can be seen most clearly in the young child. For example, let us say that a three year old child panics when a fly comes near him, runs away when a stranger approaches, cries when he is aware that his mother is not present, and refuses to go alone to the second floor of his own home. If one assumes that these anxious reactions are unrelated, then of course, there is no problem. But if one assumes that they are in some way related, it becomes difficult to understand them in terms of stimulus or response similarity. Even if this child is highly verbal, he can not explain the strength of his responses and he is unaware of any re-

lationship. It is our contention that if one were to attempt to study these reactions, one might be able to demonstrate some stimulus or response similarity, but that, in addition, one would have to consider the role of common unconscious factors, particularly in order to understand the blatantly disproportionate strength of some of the reactions. What we are saying here is in some respects similar to the problem of understanding the posthypnotic behavior of a subject to whom many different kinds of instructions or suggestions have been made if the observer does not know that posthypnotic suggestions have been given—and the subject, of course, is not consciously aware of them either—the subject's behavior is indeed puzzling and questioning the subject is usually unrevealing.

ANXIETY AND TEST PERFORMANCE

Up to this point our discussion has concerned some of the relationships between test anxiety, on the one hand, and self-attitudes, unconscious significances, parent-child relationships, and other anxieties, on the other hand. We now turn to a consideration of the relationship between test anxiety and test performance insofar as the school-age child is concerned. Whereas in the previous sections we have more or less viewed the problem developmentally, we now shall focus on the effects of anxiety on test performance, be it the individual, group, or classroom type of test situation.

We have described the test-anxious child as one who has self-depreciatory attitudes, anticipates failure in the test situation in the sense that he will not meet the standards of performance of others or himself, and experiences the situation as unpleasant—an affective state which signifies conflict between tendencies which are conscious as well as between conscious and unconscious tendencies. We might put this in another way: *in the test situation such a child is much more aware of his own covert responses than he is of the nature of the external stimulus situation, which includes, of course, the stimulus task and accompanying instructions.* One might say that the test-anxious response, like all other anxious responses, has two major (and cumulative) effects: it narrows considerably the perception of the external field and prevents a dispassionate assessment of the nature of the problem-solving task. From this way of viewing the problem it is not surprising that our initial hypothesis would be that test anxiety essentially interferes with problem-solving in the test situation.

We have already indicated that the initial instigation of the test anxious response is the knowledge by the child that he is or will be in a situation in which an authority figure will in some way pass judgment on his adequacy. With this and our previous hypotheses in mind, the following series of statements represent our conception of the role of other situational factors in affecting the performance of the test anxious child.

1 The personality and behavior of the examiner will be important factors in the performance of the test anxious child. To the extent that the examiner (unwittingly) engenders in the child a hostile reaction or the feeling that he must not be dependent, or indicates that he has no doubt that the child will do well, or that he will be compared with others who have taken the test or that there are important consequences to test performance—to the extent that the examiner engenders these feelings or reflects these attitudes, the performance of the test anxious child will be adversely affected because each of them can have the effect of heightening existing conflicts in the child. One can say to some children "I know you will do well" and it will not have, as it tends to have in the test anxious child, the effect of arousing both conscious and unconscious tendencies toward failure and its consequences as their content. Some children will not be particularly affected by a cold and aloof examiner, but to the test anxious child this may be interpreted as not being liked or a sign of bad things to come. Some children can allow themselves to feel hostile toward an examiner, but in the test anxious child such a feeling (when it can be experienced) has conscious and unconscious significances the elaboration of which is too dangerous.

2 Problem solving tasks differ in the degree to which the direction of solution is indicated as well as the degree to which the examiner can offer clues or support to the subject. It is precisely in the situation where the test anxious child can depend little or not at all on the examiner or the task for clues or support that his performance will be impaired. The most important basis for this hypothesis is the strong dependency needs of the test anxious child, i.e., his need to know clearly what is expected of him and what the examiner considers "right" or "good," to feel sure that external support and guidance will be given him when he feels helpless, and to know whether or not he is conforming adequately to the examiner's standards. Independence in the sense of wanting or being able to work things out by oneself is by no means a prepotent response characteristic of the test anxious child.

Hypotheses 1 and 2 have concerned the test situation without consideration of the time variable. What is the effect of test anxiety on test performance over the school years?

3 Our hypothesis would be that the rate of increase in performance of the test anxious child would be significantly less than for the non test anxious child. This is not to say that test scores of test anxious children would not increase (this might happen in some cases), but that the amount of gain would not be an accurate reflection of potential or capacity. At this point it should be borne in mind that the test anxious response is essentially a covert one, i.e., it is for the most part a complex of responses which is not articulated or clearly discernible by another person. Consequently, it is not likely that the relation between test anxiety and test performance would be recognized so that corrective steps could be taken, assuming that in the classroom situation, for example, one would know what the corrective steps should be. What we are saying here is that in the situation where test anxiety is experienced most frequently (i.e., the classroom), the significant adult tends not to recognize the problem and therefore can be of no help in minimizing the strength and effects of the test anxious response. The passage of time tends not to be therapeutic and the problem may remain at a particular level or become worse. In addition, since the test anxious response essentially prevents the child from an objective assessment either of himself or the external situation and tends to result in self-defeating behavior, repeated test experiences would not be expected in themselves to result in a reduction of test anxiety.

Hypothesis 3 states the conditions under which test performance would be adversely affected by test anxiety. It would be more correct to say that the hypothesis indicates the conditions which would engender a degree of test anxiety which would interfere with performance. An important question concerns the conditions under which the test anxious child would not experience those reactions which ordinarily impair his performance. The first of these conditions is when the problem solving tasks are presented to him in such a way as to minimize the test like atmosphere of the situation. One might say that the more game like and the less test like the situation becomes, the less likely test anxiety and its consequences will be experienced. A second condition is when the nature of the instructions allows the test anxious child to have a relationship with the examiner which permits the expression and partial support of his dependency needs when he is beginning to feel helpless in relation to the task. The sense

of this hypothesis is not that the examiner in any way gives the solution, but rather that the child is permitted or even encouraged to ask questions or make requests without either of these being considered wrong or a sign of inadequacy. In other words when the test anxious child is permitted to give some expression to his dependency needs—a permission which influences his perception of the examiner as an authority figure—the likelihood of his experiencing anxiety and its consequences is reduced. Most standardized tests of course are not structured in this way. Far more often than not the child is required to solve the problem by himself without any opportunity to ask questions (without this being considered a sign of inadequacy) or express uncertainty or the need for some kind of support or guidance. That the test anxious child is unduly affected by this type of test situation concerns us less at this point than the failure to take this into account in using tests.

TEST ANXIETY AND NEED ACHIEVEMENT

The relationship between test anxiety and need achievement is very complex, and we bring it up less because of any specific hypotheses which might be stated but more in order to indicate its complexity. We raise the problem because of our realization that test anxiety, as we have discussed it, can be viewed as an anxiety about achievement in particular kinds of situations. The test situation narrowly conceived is one in which the child perceives that he will be evaluated in terms of what he has achieved in the past or what he can achieve in the immediate present. A factor which could make for strong achievement motivation is the need or wish of the test anxious child to please or to conform to the standards of the parent or surrogate. Achievement means not only obtaining various types of rewards (a good mark, praise, affection), but also has the effect of avoiding an exacerbation of the conflicts between the conscious and unconscious tendencies discussed in previous pages. Although the test anxious child has strong doubts about his abilities and anxiously anticipates the vague but negative consequences of failure at the same time he has a strong need to achieve the goals which others set for him or which he has set for himself. What deserves emphasis is that the process of achievement is a means toward the end of obtaining certain types of reactions and rewards from others. This is true for all children but in the test anxious child intellectual achievement and performance are unduly related to anticipated interactions with adults.

What about the test anxious child who clearly does not achieve and has a relatively long history of failure? One would not expect that his need to achieve would be strong in the sense that he expends a great deal of energy or time attempting to improve his performance. He may *wish* to do better but his "trying to do better" would lack strength or conviction. This situation is not very different from that encountered in many children with reading difficulties: they say they want to read and go through the motions of trying to improve, but one gets the definite impression that they are unable really to expend energy or direct their attention to the task in a way that allows one to say they are strongly motivated. (Needless to say, many of these reading problem cases would be expected to be test anxious.) In the case of the test anxious child with a history of failure or lack of achievement, one might expect that the strong need for achievement would be expressed in phantasy activity.

It is clearly not the sense of our thinking that the test anxious child is one who to an observer, would necessarily appear strongly motivated to achieve, or, in terms of self report, would suggest a striving and strong desire to do well. These reactions would be expected in some test anxious children, but in others the strong achievement need would be expressed in the contents of phantasy.

It may be that one of the factors influencing the mode of expression of achievement needs is parental attitudes toward academic achievement. If parental attitudes consist in placing high value on achievement—reinforcing the values of the classroom—we would tend to expect that the test anxious child would manifest the more overt signs of strong achievement motivation. Where parental attitudes do not involve such values, the test anxious child is under no external pressure to perform well, particularly if the teacher does not expect much from a child of this background, and such a child may express his achievement needs in phantasy activity. One may ask why such a child should be test anxious if he comes from a background where intellectual or achievement values are by no means prominent. We would not expect test anxiety to be characteristic of such children but we would by no means expect it to be absent. Our conception of the developmental aspects of test anxiety does not assume that the preschool parent-child relationships we have described earlier have as their focus the intellectual adequacy of the child, i.e., judging the child in terms of brightness. What is important in our conception is that parental behavior engenders in the child self-derogatory attitudes. A child can develop such a self-conception in a family situation in which there is relatively little concern about level and rate of intellectual development of the child. When such a child enters the school culture he may become

"test" anxious even though intellectual adequacy was not a concern of the parents. However, just as we find it difficult to conceive that the developing self-attitudes of the very young child would not involve his conception of his own body, we also find it difficult to conceive that he does not develop some conception of the adequacy of his "mind," i.e., his adequacy in meeting various kinds of problem solving tasks. In the case of the test anxious child whose parents in the preschool period did not in any explicit or direct way focus on his intellectual adequacy, the significance of his entering the school culture is that he encounters adults who are like his parents in that they make demands, set standards, and pass judgments. The fact that these adults focus on aspects of behavior which the parents did not is less significant than their similarity of role. It would perhaps be more correct to say that such a child becomes test anxious because of similarity of role between parents and teacher, as well as the common conscious/unconscious conflicts which they engender. In other words we are here dealing with a variant of a problem discussed earlier when we attempted to understand in the very young child how apparently different anxieties were related to each other.

Although the above discussion is intended primarily to convey the complexity of the possible relationship between test anxiety and need achievement, there is one aspect of the discussion which we feel secure in stating as a hypothesis: the correlation between test anxiety and indices of social class would be expected to be positive but small. Since we assume that the development of test anxiety may occur in a family setting in which intellectual and academic achievement is not stressed, we would expect that among children coming from lower class homes in which such values are not stressed there would be many test anxious children. In other words, although we feel that emphasis on such values facilitates the development of test anxiety, it is by no means a necessary prerequisite.

ANXIETY AND SCHOOL PHOBIA

From our standpoint the school phobia represents perhaps the most blatant form of what we have subsumed under the term test anxiety. Typically the "school phobic" child is one who experiences such extremely strong anxiety about going to school that unusual steps are necessary to enable him to go into and remain in the classroom. More often than not the most obvious feature of this type of case is the inability of the child to separate from the parent. Less obvious but still prominent is the display of dependence and hostility on the part of the

child toward the parent who is attempting to get him to go to school or to remain in the classroom. In the case of the school phobic child who is starting school for the first time, and literally has had no experience in school, one wonders how appropriate it is to talk of a school phobia. It is the act of separation rather than the idea of school which is the immediate antecedent of the reaction. One would expect that such a child has had a history of anxiety associated with separation experiences and that the beginning of school is but another occasion of the arousal of a conflict between child and parent. What we wish to emphasize here is that the hypotheses we have offered are relevant both where the school phobic response is primarily focused on the parent as well as in those instances where actual school experiences play more of a role. In other words, although our studies never involved the school phobic child, we touch upon this type of case here because we would expect that the hypotheses we have presented on previous pages would be strongly supported by studies of such children—particularly those hypotheses concerned with parent-child relationships.

There are two reasons why we did not study the school phobic child. First, as we shall emphasize in Chapter 4, we desired to develop measures of anxiety which we could utilize with all elementary school children, the bulk of whom experience and handle anxiety in less blatant ways than the school phobic child. Second, in terms of the total elementary school population, the school phobic reaction is too infrequent to allow one to conduct studies with sufficient subjects and methodological controls to allow one to generalize from the findings. In Chapter 3 we shall evaluate our hypotheses in terms of those studies and clinical observations which have been made on the school phobic child.

SOME COMMENTS ABOUT THE HYPOTHESES

As we mentioned at the beginning of this chapter, the primary purpose in presenting the hypotheses was to describe the theoretical orientation out of which they came. In other words, we wanted to indicate to the reader that the various directions in which our research has gone (i.e., the different variables we attempted to study) were not a function of random thoughts. We are, however, fully aware that most of these hypotheses when taken singly are not unambiguously related to our theoretical orientation nor are the interrelationships among the hypotheses precisely or logically spelled out.

Such precision was not possible for at least two reasons. First, psychoanalytic theory is at this time too sprawling and unorganized to allow one to focus on a particular kind of behavior and state precisely what will happen under what conditions. Second, by the very nature of psychoanalytic theory the interrelationships between two variables are staggeringly complex. For example, one of our hypotheses states a relationship between test anxiety and hostility. Any attempt at this point to make detailed statements about expected relationships between these two variables runs into the problem that hostility can be experienced and reacted to in very diverse ways in different individuals. It probably is the case that detailing these varied ways of handling hostility (and their expected relationships with anxiety) is not as much of a problem as is the development of appropriate methodology for their measurement. In any event, neither the status of current methodology nor theory allows one to develop or state predictions in an unambiguous way. This state of affairs, however, is no excuse for not proceeding in research and obtaining data which can serve as a basis for evaluating one's formulations and increasing their clarity and interrelationships. The current status of psychoanalytic theorizing is probably due as much to a lack of relevant systematic research data as it is to the inadequacies of such theorizing. In the present as well as in the past, the bulk of psychoanalytic theorizing has been based on clinical observations rather than on the basis of controlled and systematic research.

If we had been interested only in the relationship between anxiety and hostility, we would have felt forced to spell out our expectations on the basis of our theoretical orientation, even though we would have felt insecure in the process. With such a narrowed focus one has to determine as soon as possible the adequacy of one's theoretical formulation. In our case, however, the detailed interrelationships between these two variables were far from being the sole interest of our project. In fact, we deliberately avoided this problem because we felt that there were prior problems (theoretical and methodological) which had to be better understood. Yet we felt that we could not avoid discussing the problem in this chapter because in later ones our interpretation of some of our findings touches on the interrelationships between anxiety and aggression.

The above comments are by way of indicating to the reader that our studies reported in later chapters bear more on some hypotheses than on others. In the chapter which follows, however, we have attempted to review the literature relevant to all the hypotheses presented in this chapter.

Review of the literature

CHAPTER 3

In the previous chapter we described the theoretical framework within which our thinking and research developed. In the present chapter we limit ourselves to a review and discussion of what others have thought and discovered about anxiety in children. Although the writings in this area are numerous, research evidence which is directly relevant to the specific hypotheses stated in the preceding chapter is by no means abundant. One reason for this state of affairs is that there have been no previous systematic studies of test anxiety or, for that matter, of any other specific anxiety (with the possible exception, as we see later in this chapter, of school phobias). Although the literature on anxiety in children is vast much of it is of a clinical theoretical kind which, however thought provoking and insightful it may be, does not allow one to evaluate the merits of our hypotheses in a secure fashion. There are, however, several important reasons why aspects of this literature (which is heterogeneous in terms of problem focus, methodology, and degree and type of theoretical rationale) should be discussed here. First although in the previous chapter we focused on test anxiety, we emphasized (and predicted) that the test anxious would be found to be anxious in many other situations. Therefore, although much of the literature is concerned with "anxious children" with very little attention to test anxious children we would nevertheless expect this literature to be relevant to our focus. On *a priori* grounds we would have to say that findings of studies about "anxious children" should support rather than contradict our hypotheses. A second reason for surveying the literature is that only through such means can the non-clinician obtain some idea of the significance

which is attached to anxiety in the development of personality. As important as the appreciation of the different effects which anxiety may have is the recognition of the centrality of the concept of anxiety in understanding the development of personality in children. A third justification for this review is our own need to attempt to impose some semblance of order upon the vast body of literature which deals with anxiety in children. We have not attempted to cover the entire literature but rather to focus on those aspects which seemed most relevant to our own research.

Before proceeding with our review of the literature dealing with the relations between anxiety and other variables, we discuss briefly in an initial section the earliest origins and development of anxiety in children. In addition, after considering the difference between fear and anxiety, we review the various empirical collections of fear and comment upon their relevance to the study of anxiety.

The second section of this chapter concerns studies relevant to our hypotheses about the nature of the relationship which should obtain between anxiety and certain variables and past experiences. Since these variables and experiences include the child's early relationships with parents, siblings, and peers, this second section is concerned with early interpersonal relationships as well as with studies dealing with such topics as social roles, the test situation, and the restaging of early object relationships in the school and peer situations.

The third section is devoted to the many studies which deal with such variables as self-esteem, dependency, achievement needs, body image, and aggression. Each of these variables can be studied and discussed separately for research and didactic purposes but they are inextricably welded together in the personalities of "real" children. One might call this multivariate pattern the "sexuality-hostility matrix" because within the psychoanalytic framework these variables are direct consequents of various aspects of psychosexual development and/or the vicissitudes of aggressive impulses. Studies of these variables, many of them individual case studies, reveal how the interaction between environmental and internal forces produces personality and character by way of the mediating role of anxiety.

In the fourth and final section of our survey, we review those studies which contribute evidence and opinions about the effects of anxiety upon thinking, problem-solving, and other task reactions. We are interested in why these activities elicit anxiety in the first place, as well as in the specific and general effects of anxiety. Such topics as learning inhibitions and school phobia are considered here.

THE CONCEPT OF ANXIETY

Although the concept of anxiety has been important in the thinking of mankind since the beginning of philosophy and religion, Freud was the first to attempt to indicate how the diverse conditions under which anxiety arises, as well as the assumed universality of its appearance, could be incorporated within a single psychological framework. The concept was refined in the mill of continuous and intense contact with human behavior until it emerged as one of the key constructs of a theory of human behavior which was comprehensive enough to encompass the scope of what people think, say, feel, and do. Since, as we have pointed out, our basic assumptions, hypotheses, and research, stem directly from psychoanalytic theory, we feel that a brief review of Freud's thinking about anxiety is relevant at this point.

The Genetic Point of View. The most meaningful way of attaining an understanding of the psychoanalytical concept of anxiety is to consider its development from the genetic (i.e., developmental) point of view. Freud considers the complex of sensory, motor, and physiological experiences which suddenly flood the immature nervous system of the foetus at birth to be the prototype of all later anxiety reactions. The important point here is that this first anxiety reaction is an un-governed, "automatic" reaction to what can be thought of as the most helpless state of affairs in which the human organism will ever find himself. He has learned few (if any) ways of dealing with this state of helplessness, and so has no way of warding off the intense and probably painful respiratory and cardiac reactions which occur automatically in all members of our species at this particular time. This painful reaction is adaptive in that it precipitates independent breathing and the elimination of toxic products which have accumulated in the blood stream during the birth process. It is interesting to note that the observations of obstetricians and certain exploratory researches have indicated that there are wide individual differences in the intensity of this first "anxious" reaction. It seems likely that these individual differences have both constitutional and environmental determinants. We know relatively little about the former, but with regard to the latter certain intra uterine experiences as well as premature birth seem to play an important role in increasing the intensity of the reaction (Greenacre, 1941, Deutsch, 1944, Squier and Dunbar, 1946, Dunbar, 1954). There is also evidence which suggests that infants who respond with an intense reaction to the birth process are

later characterized by hypersensitivity and low frustration tolerance (Bergman and Escalona 1949). The quantification of the intensity of this first anxiety reaction together with a multidisciplinary study and isolation of the significant genetic and environmental variables with which it is correlated is a relatively unexplored research area.

During the days following birth the helpless condition of the neonate is prolonged by the combination of new stimuli such as hunger and the immaturity of his motor and nervous systems. Therefore his automatic anxiety reaction continues to occur after birth in the face of painful new stimuli. But as the organism gradually matures in the context of new and repeated experiences a most important and mysterious transition takes place. Increasingly the anxious reaction no longer occurs automatically to a dangerous (painful) situation which is already present but instead somehow comes to occur in modified form before the onset of the painful stimulation. Thus anxiety takes on a signaling function which warns of the impending danger and enables it to exercise preventive measures in order to avoid the experience of intense pain. This transition seems to come about through some sort of learning or conditioning process which probably depends jointly on the maturation of the motor and nervous systems and upon the occurrence of certain kinds of specific experiences. When there is some anomaly in the maturation process and/or some crucial environmental deprivation or trauma it follows that this transition of anxiety from an "automatic reaction to danger" to a "signaling function" under the control of the ego does not take place. In this event the organism continues to experience anxiety in overwhelming and extremely painful amounts in the face of every danger situation. Such failure of the developing organism to acquire control of the anxious reaction may be responsible for the complete social withdrawal of some children who are raised in institutions where they are deprived of certain types of environmental stimulation (Spitz 1945 1946 Spitz and Wolf, 1949). It seems possible that complete withdrawal from all stimulation constitutes the only defense these infants could learn for avoiding overwhelming amounts of anxiety.

In most children after anxiety takes on its signaling functions the ego learns to react to this danger signal in various ways which are probably also both constitutionally and environmentally determined. These defensive reactions take many forms and may be utilized flexibly or rigidly. It also seems likely that these early learned reactions to anxiety are basic determinants of personality and characterological differences in later life. In addition the defensive maneuvers of an individual may be adaptive or maladaptive in different situa-

tions. When the defensive processes available to a particular individual are varied and flexible, the chances are high that they will be adaptive in most situations. But when an individual's defensive structure is rigid and limited, it follows that his defensive reactions will usually not be appropriate to a particular situation and thus will be maladaptive in the sense that they will interfere with adaptive functioning. Such defensive processes are usually labeled symptoms, although we are learning that even where the defenses are not clearly pathological they can still interfere with performance if they are inflexible and inappropriate to a particular task. It is also possible that defenses which interfere with performance in most situations may be adaptive or facilitating in certain limited or specific situations. For example, a child who always defends against the danger signaled by his anxiety by withdrawing from social relationships into a private world of symbols may be very facile with numbers.

Freud devoted considerable attention to the anxious reaction from the viewpoint of the types of danger situations to which it is either an automatic reaction or a signal which triggers various types of ego defenses. Genetically speaking, as we have pointed out, the first danger situation is the state of almost absolute helplessness which characterizes the period during and immediately after birth. Gradually, the first danger situation becomes more focused as the infant learns that the appearance and disappearance of feelings of "unpleasure" are in some way associated with the appearance and disappearance of certain objects (e.g., people) in his environment. Thus, the anxiety becomes displaced from the danger situation of helplessness to the "determinant of the danger-loss of the object and the modifications of that loss, etc." (Freud, 1949). The danger becomes even more specific during the phallic phase (two to five years of age) as the child comes to fear a more defined type of separation, namely castration. The next change occurs as the child "depersonalizes" and internalizes the parental institutions from which castration was feared. This internalization of the child's version of the parental values is termed the development of the superego. With this process, the danger situation again becomes less defined. Freud calls the anxious reaction to this danger "moral anxiety" or "social anxiety." "Now what the ego regards as danger and responds to with the anxiety-signal is that the superego should be angry with it or punish it or cease to love it" (Freud, 1949). Freud summarizes these transformations as follows:

the danger of psychological helplessness is appropriate to the period of life when his ego is immature; the danger of loss of object, to early childhood when he is still dependent on others; the danger of castration, to the phallic

phase, and the fear of his superego, to the latency period. But all these danger-situations and determinants of anxiety can persist side by side and cause the ego to react to them with anxiety at a later period than the appropriate one, or several can come into operation at the same time (Freud, 1949, p. 115).

Finally, an important fact with regard to sex differences is that in girls the danger situation of loss of object seems to remain the most effective. Freud also points out that, in contrast with what happens with boys, the danger situation "loss of object" becomes transformed into a fear of loss of the object's love.

Anxiety as an Experiential Phenomenon Freud's three criteria of the anxious reaction show clearly that he conceives anxiety to be an experiential phenomenon. As stated in Chapter 2, these criteria are that anxiety is unpleasant, has physiological concomitants, and is consciously experienced. It is in this sense that "drive" characteristics have been attributed to anxiety since the organism presumably strives to avoid such unpleasantness. It is assumed that, owing to previous experience, this unpleasant experiential state has come to mean "danger."

In view of the fact that one of his criteria for the anxious reaction is that it is a conscious affective experience, the use of the term "unconscious anxiety" seems to be paradoxical. Freud himself refers to "unconscious affect" at one point (Freud, 1925b), and it is not uncommon to find the term bandied about in more recent psychoanalytical literature. The paradox is cleared up when we realize that when Freud uses the term "anxiety" in this connection, he is not referring to anxiety itself but rather to an "unconscious readiness" to develop the affect of anxiety (Fenichel, 1945). This is what he has in mind when he speaks of anxiety as an "unconscious affect." In Freud's words:

It may happen that an affect or an emotion is perceived, but misconstrued. By the repression of its proper presentation it is forced to become connected with another idea, and is now interpreted by consciousness as the expression of this other idea. If we restore the true connection, we call the original affect 'unconscious', although the affect was never unconscious but its ideational presentation had undergone repression. . . . In every instance where repression has succeeded in inhibiting the development of an affect we apply the term 'unconscious' to those affects that are restored when we undo the work of repression. So it cannot be denied that the use of the terms in question (unconscious affects) is logical, but a comparison of the unconscious affect with the unconscious idea reveals the significant difference that the unconscious idea continues, after repression as an actual formation in the system Ucs, whilst to the unconscious affect (anxiety, guilt) there corresponds in the same system only a potential disposition which is prevented from developing further. But there may very well be in the system Ucs affect-formations which, like others, come into consciousness. The whole difference arises from the fact that ideas are cathexes—ultimately of memory traces—

whilst affects and emotions correspond with processes of discharge, the final expression of which is perceived as feeling (Freud 1925b, pp 110-111)

Thus for example, we are really referring to an unconscious "readiness" or "potential disposition" when we use anxiety as an intervening variable in predicting that the removal of a certain symptom will be followed by an unusually strong anxiety reaction. When we use the concept of anxiety in this way, some important research areas become apparent. For example, an important question arises as to the conditions under which some children develop the capacity to experience only small (adaptive) amounts of anxiety (the capacity to utilize anxiety only as an adaptive danger signal), whereas other children seem to experience no anxiety at all until they "explode" and are overwhelmed by it. It seems obvious that the experiencing of abnormal amounts of anxiety seems to be indicative of some malfunction in the individual's ego or control apparatus. In this connection, it is becoming more and more apparent that anxiety and the other ego functions, including defensiveness, problem solving functions, perception, etc., cannot be studied independently without recognizing the effect which each has upon the other.

Thus far we have attempted to indicate concisely the major aspects of Freud's conception of the nature, origins, and development of anxiety in children. Other writers who have made either important contributions to the theory of anxiety in children or reviews of theory include Bornstein (1945, 1948, 1951), Sullivan (1948, 1953, 1956), Gershman (1950), Erickson (1950), May (1950), Thompson (1952), Mussen and Conger (1958), Almy (1955), and White (1956). It is to be expected that not all theorists accepted all aspects of Freud's position. It is our impression, however, that what revisions have been made or suggested are more in the nature of clarifications and elaborations than in basic revisions or disagreements. This is not to say, for example, that Sullivan's *theory of behavior* is no different from that of Freud's—this is clearly not the case. We are saying, however, that their *theories of anxiety* are more similar than they are different. In this connection, as well as in terms of its importance for research in anxiety in children, we now turn our attention to the differentiation between anxiety and fear.

ANXIETY AND FEAR

Theoretical Aspects Jersild (1954a, 1954b) has summarized some of the criteria that have commonly been used in differentiating anxiety

and fear. These criteria have been derived primarily from early psychoanalytic theory. In general, the danger of disaster, which anxiety signals, is considered to be subjective (internal) in nature in that the conflicting tendencies and impulses, unfulfilled needs, etc., that underlie and precipitate the anxiety dwell within the personality. These inner tendencies and unresolved conflicts are commonly described as unconscious. Whereas in fear there is a relatively clear differentiation and perception of the dangerous elements of the situation and of the direction of the impulse, such is usually not the case with anxiety. In anxiety states, feelings may be diffuse, vague, and varied and the child's reactions may appear to be indiscriminate and inappropriate.

Harry Stack Sullivan has performed an important and significant theoretical service in differentiating between anxiety and fear in terms of their differing roles with respect to the "self system" (Sullivan, 1918, 1953, 1958). The self system is "an organization of experience for avoiding increasing degrees of anxiety which are connected with the educative process." For Sullivan, anxiety is a reflection and warning of internally originating discrepancies in the self system, and fear is a dynamism (personality mechanism) for dealing with external (realistic) danger. He points out that our tendency to confuse anxiety and fear is accentuated by our perception of the fact that children tend to verbalize when they are anxious and that such verbalizations tend (falsely according to Sullivan) to suggest that the child is afraid of *something in particular* which is clear to him although perhaps not overtly expressed. The adult frequently fails to recognize that such verbalizations may take inappropriate forms, such as rationalizations and unrealistic denials, which reflect anxiety rather than fear.

Sullivan's definition of anxiety is basically similar to the Freudian viewpoint discussed in the preceding section although his emphasis is on defining anxiety as the need for security (the approval of significant others) and on the fact that it is experienced for the first time when the infant becomes capable of differentiating people and his own bodily limitations out of the matrix of his earliest experiences (which are experienced as almost random physiological tensions and satisfactions). Thus, as with Freud, Sullivan conceives that anxiety is based ultimately upon the waxing and waning of physiological tensions but he emphasizes that it develops as the inevitable consequence of the child's relationship with his mother (or other significant adults).

In summary, for Sullivan, anxiety is a dynamism called out by empathy. Furthermore, anxiety is a product of education and living among

significant people and is social and human. As was pointed out earlier, it is also a warning signal: it implies danger from within. It is a warning that one has to do something to make sure that his security does not sink suddenly as a result of the actions of significant people or ideas. When anxiety is extreme it is equivalent to "terror," which is defined as the state in which a person is extremely afraid of something erupting into awareness that seriously threatens his security.

Fear, on the other hand, is a self-preservational device in Sullivan's system. It is a "bundle of processes called out by the great novelty of the situation" — it is a legitimate reaction to something that is really dangerous in the situation. It differs from anxiety in that it is mediated by distance sense receptors. It tends to increase sensory acuity and precipitate adaptive and flexible changes in the physical economy (although these changes may become maladaptive in particular situations owing to recent cultural changes in the history of man). In fear there is a concentration of consciousness onto the "real" fear-provoking aspects of the situation. As with anxiety, when fear becomes extreme, "terror" results, but this terror is based upon an objective reality rather than the disapproval of significant persons. Fear also differs from anxiety in that the more clarity that is introduced into what is fear-provoking, the more likely it becomes that the person's fear or terror will be reduced.

Karl Menninger's (1933) position on this topic is basically similar to that of Sullivan in emphasizing the role which early childhood environmental experiences play in making "loss of love" the most poignant pain of childhood. The mystery of why the adult experiences fears from the outside world and neurotic fears (anxiety) from within can only be solved by acquiring an understanding of these early experiences. Hilda Weber (1936) also has emphasized that as the child learns to discriminate between self and environment he develops a stronger need for security. A sense of security enables the child to gradually handle his fear in more mature ways. In the absence of such security, he will continue to rely upon "animistic" ways of dealing with his fears. In addition, she shows how a continuation of feelings of insecurity and fear has an inhibiting effect upon the development of an interest in exploring his environment and also has serious implications for later emotional and intellectual development.

The present writers feel that it is useful to discriminate between anxiety and fear on the conceptual level, and it seems to us that Sullivan's position is more tightly reasoned and more clear in this respect than most other positions *as long as one is speaking of adult behavior*. However, as Erickson (1950) has pointed out, careful and

intensive personality studies of children have shown us that the younger the child the more difficult it becomes to maintain such a distinction between fear and anxiety. This is due to the fact that the younger the child the more immature are the intellectual and personality processes which differentiate between inner and outer real and imagined dangers. This has also been convincingly shown at the experimental level by the studies of intellectual development carried out during the past 30 years by Piaget and his collaborators. As Erickson puts it the child is as yet too close to his infantile danger situations he is still in the midst of the painful process of acquiring a tried and true sense of reality by means of an ongoing "painful testing of inner and outer goodnesses and badnesses" he has not learned to distinguish clearly between dangerous objects forces and events in the external world and "his own angry drives his own sense of smallness and his own split inner world." Erickson agrees that in the adult "fears are states of apprehension which focus on isolated and recognizable dangers so that they may be judiciously appraised and realistically countered [whereas] anxieties are diffuse states of tension (caused by a loss of mutual regulation and a consequent upset in libidinal and aggressive controls) which magnify and even cause the illusion of an outer danger without pointing to any avenue of defense or mastery." But he also implies that the great majority of the specific "fears" of children against which the child perceives no avenue of defense or mastery are only illusions of outer dangers. When faced with painful anxiety children either magnify dangers which they have no real reason to fear or they deny or ignore dangers which they have every reason to fear. Their immature egos have not learned "to be able to be aware of fear then without giving in to anxiety to train [their] fear in the face of anxiety to remain an accurate measure and warning of that which man must fear."

"Therefore only as the child nears maturity does he become susceptible to the types of adult neuroses and judgmental defects which are brought about by "a short circuit between rational adult fears and associated infantile anxieties." The following passage suggests how the "objective" fears of childhood become an indistinguishable part of the early matrix of infantile anxiety.

Babies are startled by a number of things such as a sudden loss of support or a sudden intense noise or beam of light. Such events are accidental and rare and are quickly adjusted to unless a baby has learned to fear suddenness in the changes around him. From here on it is difficult to say when he fears the recurrence of a particular event, or suddenness as such and when he reacts with anxiety to the adult ineptness or tension which is expressed in recurring

suddenness. Fear of such objective things as loss of support or noise thus easily becomes anxiety connected with the sudden loss of attentive care (Erickson 1950, p. 364).

We must conclude, therefore, that to distinguish between fear and anxiety in children, at either the conceptual or the practical measurement level, is extremely difficult at the younger age levels, although it becomes (theoretically) increasingly possible with the approach of adolescence and the concomitant acquisition of what Piaget has termed "logical thought processes" (Inhelder and Piaget, 1958).

Relevance to Our Hypotheses It seems appropriate at this time to interrupt this review of the literature in order to see what light the previous discussion sheds on some of the hypotheses presented in Chapter 2. The content of this previous discussion clearly does not allow us to evaluate the validity of any of our hypotheses but it does indicate rather clearly why they took the direction they did. For example, the emphasis we placed in many of our hypotheses on the role of "significant others" (e.g., parents, teachers) in the development of anxiety in children is explicit in Freud's discussions and beautifully described and elaborated in those of Sullivan. When we asked why should a child be anxious about his adequacy in the classroom, our attempt to answer the question in terms of what the anxiety reflected about the child's anticipations of approval-disapproval from teacher and his parents was obviously determined by the theoretical considerations of Freud and Sullivan presented earlier in this chapter. Put in another way, it is axiomatic that anxiety in children cannot be understood without attention to their relationship with parents and parent surrogates. From this standpoint, therefore, research about anxiety in children must focus on parent as well as child.

Sullivan's conceptions and descriptions moreover, serve as a basis for specifying that the anxious reaction has been engendered in the child in part because the behavior of the parent, explicitly or implicitly, threatens the child with loss of parental approval and love, i.e., a threat to the stability of the child's self system which cues off anxiety. It is in part an outgrowth of this way of thinking that we hypothesized that the parents of the anxious child utilize withdrawal of approval and love as a means of getting the child to conform to their conceptions of right and wrong. Subtly or blatantly forcing the child to conform to their conceptions of right and wrong—responding to the child in terms of parental needs and not in terms of the child's needs and stage of personality organization—insures that the child will experience strong conflicts about dependence and independence, passivity and activity.

It is important to note that although Sullivan, more so than Freud,

was aware of and strongly emphasized social factors in the development of personality, he discusses the origins and development of anxiety in a way which suggests that it is primarily an interpersonal phenomenon rather than one which is determined by social class factors. That is to say, although social class factors are undoubtedly relevant to an understanding of anxiety, they are not the necessary or sufficient conditions for the development of anxiety. Once the anxious reaction becomes a distinctive aspect of the young child's personality it can be transferred from the interpersonal situation in which it was reinforced to other situations and relationships. It was these kinds of considerations which led us to hypothesize that test anxiety would be found in many children who come from backgrounds where intellectual and academic achievement is by no means stressed. In these cases the anxious reaction in relation to school reflects, we hypothesized, a transference to the school of the "interpersonal anxiety" engendered in the parent child relationship.

Finally, the previous discussion about the difficulties in distinguishing between anxiety and fear in children serves to explain not only why our hypotheses do not reflect an attempt to make such a distinction but, as will be seen in the next chapter, why we essentially by-passed the problem in developing our measuring instruments. It was our opinion that to the extent that our instruments allowed us to confirm predictions stemming from a theory of anxiety we would be justified in assuming that they were reflecting the construct of anxiety rather than fear.

Empirical Collections of Fears in Children Since a large proportion of the child's "fearful" reactions might well be classified as anxiety reactions, most of the empirical collections of fears which have been made in the twentieth century are collections which although they may include a small proportion of objective or reality based fears are comprised mainly of situations which arouse infantile anxiety in the children studied. It is rare in any of these studies to find a discussion of the possible implications of a distinction between anxiety and fear. A more important limitation for our purposes here is that these collections of fears were not designed or interpreted in terms of a systematic theory of personality or anxiety. Consequently, the relationships among fear, parental relationships and personality variables were rarely investigated in a way which would allow us to evaluate the status of our hypotheses in anything resembling a secure fashion. Content and frequency of fears, sex differences, age trends in intelligence test scores—these are the variables with which most of these studies were concerned.

In light of the limitations noted above, it does not seem indicated

that we undertake another review here. What follows is a series of conclusions which seem warranted from these studies and which shed light directly or indirectly on some of our hypotheses.

1 One of the most consistent findings is that the majority of the so called fears of children are of an "imaginary" nature, i.e., they are obviously remote from the child's personal experiences. This finding is especially important because it tends to support Erickson's conceptualization of the difficulty in distinguishing between fear and anxiety. If, as these studies indicate, the majority of fears are of an imaginary nature, it suggests not only the role of motivational factors but also the importance of unconscious and conscious qualities in the so called fear experience—considerations which were basic to our hypotheses in Chapter 2.

2 The fears of children are in many respects similar to the fears of parents. Although this finding is not as well documented as one would like, it is consistent with our general position that the anxieties of children cannot be understood without relation to the parental variable.

3 It seems clear from these studies that although the frequency of fears remains relatively constant at the different age levels, the content of the fears seems to change systematically as the child gets older. Most of the evidence points to the fact that fears of a more general or abstract nature as well as fears of personal physical injury tend to increase with age, whereas fears of a more specific nature (e.g., fear of specific animals) tend to decrease with age. It will be recalled that one of our hypotheses stated that the anxious child is one who is concerned with bodily adequacy and that he has essentially a self derogatory body image. If concern about bodily injury normally increases with age, one would expect that the anxious child would have unusually strong concerns in this area. Our hypothesis about anxiety and bodily adequacy was not based, of course, on considerations of normative age trends. The significance of the age trends is that they, like the content of our hypothesis, suggest that a theory of anxiety must be able to come to grips with an important concern of children, i.e., the adequacy and integrity of their bodies.

4 The most consistent finding in all these studies is that the total incidence of fears is higher in girls than in boys. Although sex differences in the content of the fears are not as clear-cut, the weight of the evidence seems to indicate that, in general, boys are more concerned about bodily harm and personal inadequacies (especially near the onset of puberty), whereas girls are more concerned about the

establishment and maintenance of social relationships and with how others perceive them. The findings in regard to girls clearly support Freud's position (p. 33), and the tendency for boys to be concerned about bodily harm is also consistent with his description of psychosexual development in boys.* However, it is necessary to point out that none of our hypotheses in Chapter 2 concerned sex differences. The reasons for this omission, as well as the significance of our research findings for the problem of sex differences in anxiety, will be discussed in Chapter 10.

Studies of a More Specific Nature We now turn our attention to studies (tending to be more recent than those referred to in the previous section) of more specific fears of more narrowly defined populations. Aside from the fact that these were more focused studies, their content is more relevant to our own hypotheses and research.

One group of researchers carried out a comparative study of the worries of children in two school situations (Jersild, Goldman, and Loftus, 1941). A worries inventory was administered to fifth and sixth grade children of the New York City schools, eight of which had officially adopted an "activity" program of progressive procedures, and eight other schools that were not involved in the experiment with the activity program. The results showed no significant differences between the worries reported by children receiving different types of activity programs. The authors conclude, "It appears that the activity program, which has entailed many changes in classroom procedures, including greater freedom for the individual pupils to exercise their interests, has not rendered the pupils less concerned about their progress and competence in school work." That is, children who are relieved of a great deal of strict academic pressure continue to worry about school just as much as the students who are still subject to such pressure. This seems, in line with our discussion in the previous chapter, to point up the fact that these worries stem more from the basic personality processes of the children than from the immediate conditions within the school situation itself. This is further confirmed by the fact that over 80 per cent of the children in both groups re-

* It is important to point out that the age trend findings in relation to fear of physical injury are at variance with psychoanalytic theory (be it of the Freud or Sullivan variety). In one important respect. From psychoanalytic theory one would expect that very young children are as concerned (perhaps more so) with bodily functions and adequacy as older children. The failure of these studies to note this is probably as much due to the difficulties of young children in verbalizing such concerns as to the inadequacies of the methods used to obtain such information. This is not to say that psychoanalytic theory is right and the data are wrong but only that the theory has not been evaluated with appropriate procedures.

ported that they "often" or "sometimes" worried about test failure, despite the fact that children in the activity schools were subjected to fewer tests and less test pressure from teachers (An important point, of course, is that this would not reduce achievement pressures from home) In general, items involving the parents either directly or indirectly seemed to be the source of greatest worry to the large majority of these children In addition, the items which concerned situations other than those connected with the school (such as ghosts, kidnapping dreams, dying strange people) caused the children less worry than items relating to school failure of various sorts Another significant result was that girls tended to report more worries than boys

At about the same time, Pintner and Lev (1940) also administered a worries inventory to a group of fifth and sixth grade children in New York City The analysis of the data revealed that both boys and girls worry most about family and school items (including failing tests) Next in order come worries about personal adequacy, social adequacy, economic problems, and health problems They also found that socioeconomic status was of relatively little concern to their children (although there was considerable variation in socioeconomic level in the sample)

In another study of children's worries (Zelig, 1939), it was found that sixth grade pupils worry considerably about school progress and that this is directly connected with their worries about personal adequacy Although the study was based on a small number of cases, the data showed that children at this age level worry about school, health, safety, pets and toys, economic factors, social relationships, personal appearance, and personal conduct, in that order of frequency The worries which were most frequently reported included those about school progress and the health and safety of members of their families With respect to sex differences, girls reported more worries than boys, especially about school and the safety of people with whom they had established close interpersonal relationships Brown (1954), in a study of freshmen in an Oregon high school, obtained results quite similar to those obtained by Zelig As in the Zelig study, Brown found that the most frequent fears involved physical factors, personal inadequacy, and school factors

In a study of children from the Oklahoma City area, a group of investigators designed and carried out an extensive study of the relationship between the fears and worries of school children and socioeconomic status and age (Angelino Dollin, and Mech, 1956) The investigators attempted to sample two broad classes of pupils in terms

of socioeconomic backgrounds. As their measure of fear and worry, the investigators used lists of the fears and worries which were reported anonymously by each child. As in the studies described previously, fears and worries related to the school situation were most frequent among both boys and girls at both socioeconomic levels. Among the items and situations most frequently feared were stage fright, tests, teachers, grades, and schoolwork. However, there was a positive relationship between socioeconomic class and the frequency and types of fears reported. Boys from the lower socioeconomic level were more afraid of the teachers and more susceptible to stage fright than the boys from the upper socioeconomic class, whereas the latter worried more about grades and schoolwork than did the former. Among the girls, those from the upper socioeconomic level reported more fears and worries about school situations than did the girls from the lower socioeconomic class. However, they were more worried about grades and less worried about tests and they suffered less from stage fright than the lower class girls. It is interesting to note that worry about tests and stage fright tended to occur together in the latter group. This is further evidence of the close connection between test anxiety and personality processes. No statistical differences between the sexes as they relate to school worries were noted.

With respect to age trends, the authors reported that when fears related to school situations were plotted against age, the general trend of the curves was "somewhat negatively accelerated" for both sexes. However, it is interesting to note that boys seemed to reach the peak of their concern over school somewhat later than did the girls (about age 13 as compared with 11 to 12 for the girls). In addition, there was some tendency for the boys from the high socioeconomic level to be more concerned about school situations at an earlier age than the boys from the lower class. It follows from this study that the variables of socioeconomic status and age level are highly relevant to the study of fear and anxiety in children.

In another study designed to reveal age trends and sex differences in the fears of children, Winker (1949) found that older children showed less fear of animals but more fear of personal physical harm than did the younger children. The main sex difference was that girls were more interested than boys in social relationships, whereas the boys were more interested in activities and in their future social roles.

Bostoo (1939), on the other hand, was specifically interested in the relationship of children's fears and intellectual level. He was also interested in finding out whether there was a relationship between fears and disturbing factors in the home environment, with intelligence

held constant. This measure of fears and fantasies was obtained by analyzing psychiatric case records from the Pittsburgh Child Guidance Center and recording all reported fears and fantasies. Of course, this method is subject to various errors of measurement such as the usual lack of systematic coverage of all fears and fantasies of all the children, and a complete reliance upon the judgment and thoroughness of the psychiatrists who wrote the case reports. With this in mind, the results of the study should be considered as only suggestive and subject to further validation. Boston found that 61 per cent of the children of superior intelligence were reported to have fears, as compared with 36 per cent of the children of average intelligence. Furthermore, all the children in his average group who did have fears either had been subjected to various adverse factors in their home environments such as rejecting parents, conflicts between parents or a neurotic parent, or they had experienced some kind of traumatic event or suffered from some physical trauma around which the fear centered. In general, the fears of the majority of the children in his superior group were also related to such factors, but it was noted that "in the home of the average children, the negative factors to which they reacted with fear were very pronounced and overt in nature, while the factors to which the superior children reacted with fear were not as marked or overtly expressed." Boston felt that this finding together with the fact that three of his superior children seemed to have no discoverable basis for their fears, pointed to the possibility that a relationship exists between superior intelligence and the sensitivity to danger. That is, the fears of the superior children tend to result from a high sensitivity to subtle and covert danger cues from the environment, whereas the fears of less intelligent children tend to result only from the more blatant cues. Thus, the latter would have fewer fears because they are more or less "immune" to the subtle and covert cues. Of course, there are other explanations, such as that the superior children may have been able to verbalize their fears because of their greater facility with verbal symbols.

In a study of "the relation of physical disability to fear and guilt feelings" Cruickshank (1952) analyzed responses to a sentence completion test given to 264 adolescent children who were suffering from orthopedic, cardiac, and neurological handicaps. He compared the responses of the handicapped group with a control group of non-handicapped adolescents, and found that the physically handicapped children reported more fears and more feelings of personal guilt than did the nonhandicapped children. This finding seems to point to a relationship between feelings of physical inadequacy and scope and

number of reported fears. However, this may also be another instance of the displacement of anxiety about one's own adequacy and identity to specific objects in the environment.

One of the most interesting empirical collections in the literature deals with anxiety attacks in children (Langford, 1937). In his report of this study, Langford discusses the physical symptoms which accompany the anxiety attack as well as the importance of early detection of the nature of the attack, and the personality and social concomitants of such attacks. He gives a vivid description of this phenomenon.

The child suddenly becomes panic stricken, calls to his mother, clutches her to him and refuses to be soothed. He is fearful and apprehensive and may tell her that he has pain in his heart or abdomen. The complaint of suffocation or difficulty in breathing is frequent. Palpitation is complained of; the pulse is counted and found to be elevated. After some time the attack subsides, but usually recurs the next day or sooner. With each recurring attack both parents and child become more alarmed. More often than not the family physician has been called. His unawareness of the true nature of the attack may throw more doubt into the minds of all concerned. With wise handling there may be a cessation of the attacks but for the most part the physiological symptomatology has been treated rather than the child himself (Langford, 1937).

As an example of the latter, Langford gives the case of a normally intelligent girl of 13.

She was treated for heart trouble, hyperthyroidism and adrenal tumor as well as nervousness. She was given two months of bed rest, numerous medicines (arsenic, thyroid, iodine, bromides, quinin, digitalis, luminal, sedatol), high enemas and ice caps to the heart and eventually, a tonsillectomy.

With regard to the kind of child who develops these attacks, all the cases in his sample of 20 children were "serious minded" and tended to worry about their schoolwork and about making a good impression on other people. They were, for the most part, timid and shy in their peer relationships. It should be noted of course that the difficulties experienced by these children represent extreme manifestations of the anxiety reaction, much more obvious (and serious) than the anxieties of the "high anxious" children with which our own research is concerned.

Relevance of the Findings for Our Hypotheses. Some of the results reviewed in this section are directly relevant to some of the hypotheses presented in the previous chapter. It should be stressed, however, that the bulk of the findings are of only inferential or indirect relevance, owing to various factors discussed earlier such as differing or absence of theoretical frameworks, and lack of any specific focus in research.

design, or, at least, a lack of specific focus upon the variables encompassed by our hypotheses

The only hypothesis which the findings support unequivocally is, perhaps, more of a basic assumption than a hypothesis. This is our assumption that the anxious reaction is a frequent and important reaction to test situations. Studies such as those of Pintner and Lev (1940), Zeligs (1939), Angelino et al (1956), Jersild et al (1941), Brown (1954), and Sakellariou (1939) show clearly that school and particularly test situations are a source of anxiety and fear in large numbers of children of both sexes and of both lower and upper socioeconomic class levels.

There is also some direct and a great deal of inferential or indirect evidence in the reviewed studies which we interpret as supporting our hypotheses about the connection between test anxiety and various personality processes. These hypotheses include such predictions as that the test anxious child tends to derogate his own worth, is preoccupied with phantasies of bodily injury, punishment, and retaliation, and has strong dependency needs and conflicts. The results which have a direct bearing on at least one of these hypotheses include the findings that children's worries about school are directly connected with worries about personal adequacy (Zeligs, 1939), that worry about tests and "stage fright" occurs together (Angelino et al, 1956), and that children who suffer from anxiety attacks are serious, worried about schoolwork, and timid and shy in their interpersonal relationships (Langford, 1937). Less relevant, but still suggestive, is the finding that physically handicapped children report more fears and guilt than do nonhandicapped children (Cruickshank, 1952). This seems to point up the relationship between feelings of physical inadequacy and the scope and number of fears.

Of inferential relevance to the hypothesized relationship between test anxiety and phantasies of bodily injury, punishment, and retaliation are the findings that fears of bodily injury and physical punishment are extremely frequent in school age children (England, 1946, Dunlop, 1952; Winker, 1949; Jersild et al, 1933; Jersild and Holmes, 1935; Pratt, 1945). Dunlop's findings that the most intense fears are of situations which contain an extreme personal menace to the child's own body, especially the aggressive behavior of others, and that fears of accidental physical injury have the highest incidence in his sample are especially suggestive when viewed in connection with the well documented finding that being tested is one of the most frequently feared situations in our culture. The high incidence of concern over various kinds of physical injuries is also of some "suggestive" relevance

to our hypothesis that any situation or object which possesses the potential for bodily injury may become the focus of the anxiety of the test anxious child. We are aware, of course, that these findings are of only indirect relevance to our hypotheses since the designs of the studies do not enable us to tell whether or not the same children expressed both anxiety about test situations and fears of bodily injury. This evidence is certainly suggestive however, in view of the fact that the high incidence of test anxiety and concern about bodily integrity in the school population points to the presence of a considerable overlap of the two variables within the same individuals.

Boston's finding that all of his children of average intelligence who admitted fears either had been subjected to various adverse factors in the home environment or had experienced some kind of traumatic event or serious physical injury tends to support our hypothesis that test anxiety possesses both conscious and unconscious significances which are related to what the child has experienced in potential or actual security threatening situations of the past. Also of interest here is the consistent finding that the majority of the *specific* fears reported by children have little or no basis in reality. As we have pointed out, these specific fears seem to serve as focal points or screens for anxiety about situations, impulses and conflicts which possess extremely dangerous implications for the child's security.

Our hypothesis that where the test anxious child can express his dependency he is less likely to experience anxiety and its consequents may shed light upon the fact that the "activity" program instituted in several school systems did not lower anxiety about school (Jersild, Goldman and Loftus 1941). We would have predicted this finding since many of the changes which the program entailed increased the pressure on the student to be more independent in his schoolwork. To the extent that our hypothesis has validity, such implied sanctions upon the expression of dependency would raise rather than lower the anxiety level of children who were already anxious about school. Those aspects of the program involving increased independence pressure would tend to offset the gains deriving from other aspects of the activity program, so that the over all result would be no differences found between the anxiety levels of children in the two types of schools. Parenthetically, the findings of this study are also of relevance to our hypothesis that test anxiety is a reflection of the child's internalized conflicts deriving from his family relationships. It was found that despite the systematic difference in the extent of the pressure exerted by the teachers upon their pupils in the two types of school, all the children were more worried about parental punish-

ments than teacher punishments. One can also infer that perhaps another reason for the lack of a difference in the anxiety levels of the "activity" and "nonactivity" children involves the lack of experimental control over the degree of achievement pressure and other sanctions exerted by the children's parents.

The study by Angelino et al (1956) throws some light on our hypothesis about the relationship between test anxiety and indices of social class. Their finding that worry about school is by no means infrequent in the lower social class group supports our contention that worry about academic or intellectual adequacy may occur in many children coming presumably from homes in which academic or intellectual values are not stressed. Another finding of this study does suggest a positive relationship between social class and test anxiety but the degree of this relationship is modest as we would have predicted. This relationship is, in addition, by no means a simple one since the authors found an interaction between sex, anxiety, and socioeconomic level.

ANXIETY, PHOBIAS, AND CHARACTER FORMATION

Anxiety and Phobias: Theoretical Aspects. According to Freud, phobias are defensive reactions to conflicts deriving from the phallic stage of psychosexual development (two to five years of age) with relatively slight complication from earlier stages in the child's development. The evidence for this was obtained through many years of study of the type and content of unconscious material presented by phobic patients during their analyses as well as from the discovery that the major personality mechanism involved in the origin and maintenance of the phobia is repression. He noted that the development of the differentiated type of repression utilized by phobic patients depends upon a differentiated level of perception and the development of an advanced level of object relationships which is not reached until the phallic period of the child's development.

In one sense the phobic reaction is a projection of an internal instinctual danger or conflict upon some specific external object which can be more clearly perceived by the individual (Freud 1949). The obvious advantage of this operation is that it enables the child to focus his defensive maneuvers upon something definite and tangible. He can protect himself from external dangers by fleeing from them or by not perceiving them, whereas he has learned that it is not easy to flee from anxiety arousing *thoughts* and *impulses*. Freud emphasized how

ever, that internal conflicts and impulses possess connotations of danger only insofar as they entail a real external danger such as castration. Therefore, although it is useful to maintain the dichotomy between inner and outer dangers on the conceptual level, the fact is that in phobias the threat of one external danger (e.g., castration) is always replaced by the threat of another external danger which is better defined and easier for the child to handle (e.g., fear of animals).

In general, the phobic reaction to a specific object or situation becomes established only after the child has experienced an anxiety attack while interacting in some way with the particular object or situation (Abraham, 1955). The specific circumstances may be experienced in a physical way (e.g., the child may experience an anxiety attack while walking in the street or riding in an elevator), or they may be experienced only vicariously (e.g., the child may experience an anxiety attack while reading of wild animals in Africa). In either event, thereafter the anxiety triggered off when the underlying conflict or impulse threatens to become conscious is held in check by the phobia, but it is re-experienced whenever protection against the object of the phobia cannot be obtained (e.g., when the child is forced to ride in a phobically feared elevator). In general, however, the mechanism of the phobia remains quite stable because it does good service as a means of defense in the containment of painful attacks of anxiety.

The anxiety experienced by the child when he is confronted by the object of his phobia is a danger signal set off by his ego and the danger which is being signaled in this way is invariably the danger of castration (Freud, 1949). This experience of anxiety is the same experience which the child has in other dangerous situations except that the conflicts or impulses which serve the triggering function remain unconscious in their original form.

Of course, some types of phobic reactions are more complex than others (Freud, 1949). For example, in agoraphobia (fear of open spaces) the defensive mechanism of regression is a more integral part of the picture than in other types of phobic reactions. In these phobias where regression plays an important role, the child's ego may elude the necessity of avoiding the object of its phobia by regressing to a condition which at some earlier time possessed strong connotations of safety and security. In agoraphobia, for example, he may be able to walk in the street without experiencing anxiety if he is accompanied by someone in whom he has complete trust.

To summarize this brief discussion of the theoretical aspects of the relationship between anxiety and phobias. The phobic process begins when the ego recognizes the danger of castration and consequently

gives a signal of anxiety. This anxiety is handled by inhibiting the impending impulse or the perception of the dangerous conflict on the one hand and the displacement or projection of the dangerous connotations upon an external (previously innocuous) object or situation on the other hand. After this occurs, the original castration anxiety is elicited by a different object and therefore is expressed only in a distorted form. This transfer of the dangerous aspects of the original conflict enables the ego apparatus to cease the production of anxiety as long as the child is able to avoid the phobic object.

It is highly likely that an indeterminate number of the fears which were gathered in the empirical collections described in the previous section of this chapter represent phobias rather than simple fears. As we have pointed out, the conscious feeling tone of fear is ascribed to phobic objects which represent a projection of an unsolved emotional conflict. One of the primary weaknesses of the empirical collections of fears is that they tell us nothing about the underlying motivational conflicts.

Jean Mallet (1956) has published a rather comprehensive paper on the phobias of childhood. He proposes an interesting hypothesis that all infantile phobias rest ultimately upon early night terrors, and he also discusses stranger anxiety and the effects of childhood phobias upon adult personality. Other papers which deal with the theoretical aspects of childhood phobias include those by Lewin (1935) and Fenichel (1944).

School Phobia. School phobia is generally thought to be similar to the other phobias of childhood in that the child's anxiety or morbid dread has been displaced upon the school from some more basic source of conflict. It seems clear, however, that behavior commonly subsumed under the term school phobia ranges from a generalized morbid dread of the entire school situation to dread of more specific aspects of the school situation such as teachers, peers, particular subject matter, and tests. In the majority of the published studies of school phobia the only criterion for the inclusion of a child in this diagnostic category is whether or not he actively resists attending school. The diagnosis is usually made whether the child resists going to school because of a reported fear of some particular aspect of the school situation or whether he refuses to attend but can cite only a general dread of the entire school situation. As we pointed out in the last chapter, the latter is usually the case with very young school phobic children who have had little or no previous experience with the school situation, in these cases the reaction constitutes a blatant form of anxiety about separation from one or both parents—a reaction in which strong conflicts of dependency and hostility are obviously quite near the surface. Such

children have usually experienced the school situation in vicarious form through their siblings or they have absorbed certain verbalized and nonverbalized attitudes of their parents or other significant persons in their immediate environment which are important in the displacement of their separation anxiety upon the school. In general, it would seem that the school phobias of such children would be less stable (i.e., more easily and frequently generalized to other objects) than the school phobic reaction in an older child who has a history of experiences in the school situation and has displaced his anxiety upon some specific aspect of the school situation. Of course, this is not to say that the nature of the conflicts would not be similar or that hypotheses advanced about the general dynamics of the school phobic reaction would not hold true for both types of cases. In fact, in the last chapter we were quite specific in stating that the school phobic reaction is a qualitatively similar but more blatant form of what we have termed "test anxiety."

In the remainder of this section on school phobia we review the findings and conclusions of the various studies of this symptom which have been reported in the research literature. Then, after a brief presentation of certain illustrative clinical material and a discussion of the relationship between phobias and character formation, we synthesize and evaluate those aspects of the research findings about phobias which are relevant to our hypotheses about test anxiety.

Accurate and reliable figures on the gross incidence of school phobia in the general population do not exist so far as we know. However, Eisenberg (1958) reports that of 4000 admissions to one particular clinic over the past eight years, the incidence of school phobia has risen from 3 per 1000 to 17 per 1000 cases. He also noted that this rise "probably reflects a change in the recognition and referral from physicians and school authorities," rather than a real increase in the incidence of this type of symptom. In addition, 52 cases of school phobia were referred to the Judge Baker Guidance Center (1958) over a four-year period from the school system of a nearby suburban community with a population of approximately 80,000. From these reports it would seem that school phobia is a relatively common disorder among children in our culture.

The age level at which school phobia occurs ranges from about 5 to 14 years of age, although the disorder occurs much more frequently in children of the lower elementary grades (Johnson et al., 1941; Sutfeld, 1954; Waldfoegel, 1957). The mean age of the 34 cases receiving intensive study at the Judge Baker Guidance Center (1958) was 8.1 years of age, and the modal age was 6 years of age.

Some workers have found that the incidence of school phobia among

boys and girls is approximately the same (Johnson et al., 1941, Waldfogel, 1957), whereas others report that it is more common among girls than among boys (Talbot, 1957, Judge Baker Guidance Center, 1958). In none of the research reports which we have seen has the incidence of school phobia among boys been higher than among girls.

One of the best documented findings is that the majority of school phobic children are of above average intelligence (Johnson, et al., 1941, Talbot, 1957, Eisenberg 1958, Judge Baker Guidance Center, 1958). For example, 78.7 per cent of the school phobia cases studied in the Judge Baker project obtained intelligence test scores of 130 and over. Another well supported finding is that the incidence of academic achievement problems, as these have been defined by the schools, is of relatively low frequency among school phobic children, their school achievement being deemed satisfactory by the schools. Of course, we can only speculate that in view of such factors as the generally higher intellectual endowment of the school phobic children as a group, it is possible that they would achieve at an even higher level were not a large proportion of their intellectual resources tied up in an expensive containment of their personality conflicts and difficulties.

There is also considerable recent evidence that various socioeconomic variables are related to the development of school phobia. For example, one study found that 70.6 per cent of their cases of school phobia came from families in which the father was a white collar worker or held some professional or managerial position (Judge Baker Guidance Center, 1958). This same study also revealed a much higher incidence of school phobia among Jewish families than would be expected by chance. The authors drew the implication that "there is some interrelationship between school phobia and certain features of Jewish familial patterns that are imbedded in Jewish culture."

There is also some recent evidence that sibling position plays a significant role in the development of school phobia. Talbot (1957) found that of the 24 cases of school phobia studied, 17 were either the youngest or only children, and the workers at Judge Baker (Judge Baker Guidance Center, 1958) found that school phobia was significantly more prevalent in two child families. While the position of the child in the two child families seemed to make little difference, among their three child families the incidence of school phobia was as follows: 44.8 per cent youngest siblings, 31.1 per cent oldest siblings, and 24.1 per cent middle siblings.

Several workers have reported that the school phobic reaction is frequently accompanied by various types of somatic symptoms (Klein 1945, Suttentfield, 1954, Waldfogel 1957). These symptoms usually in

involve the gastrointestinal tract but may include many other types of physical symptoms

Research interests and resources were first focused on the dynamics of school phobia by Johnson and co workers in 1941. The findings of this early study have been confirmed and expanded by several recently reported studies of widely varying scope and focus. The recent studies range from the very enlightening and sophisticated use of the case study and observation methods in several studies (Klein 1945, Suttenfield, 1954, Talbot, 1957, Eisenberg 1958) to the large scale multidisciplinary attack on the problem being carried out at the Judge Baker Guidance Center (1958). When the findings of all these studies are integrated a relatively clear picture of the dynamics of the school phobia syndrome emerges. In few other disturbances of childhood are the interpersonal relationships of the family constellation so clearly and importantly involved. The analysis of case after case shows that one type of family constellation in particular is almost always the setting in which the school phobic reaction develops. However it also appears that the appropriately timed appearance of a certain set of environmental events must interact with this family constellation in order for the school phobia to appear.

The family constellation of which we speak includes a mother whose own unsolved dependency needs and conflicts were exacerbated by the first efforts toward autonomy by a particular child with whom she identified (Judge Baker Guidance Center 1958, Waldfoegel 1957). In most cases it turns out that these needs and conflicts stem from a neurotic relationship with her own mother (Eisenberg 1958, Johnson et al 1941, Talbot 1957, Coolidge Halm and Peck 1957). The mother of the school phobic child keeps her child in a state of neurotic dependence in an unconscious attempt to satisfy her own needs and diminish the pain of re-experiencing archaic conflicts which are manifested in deep feelings of inadequacy and anxiety about her ability to cope with her child's conflicting needs to obtain gratification of his dependency requirements while at the same time requiring some degree of autonomy and independence (Talbot 1957, Judge Baker Guidance Center 1958). Being hypersensitive in this area, the mother reacts to the anxiety aroused in her by the child's ambivalence (as well as by the consequent increase in her own dependency needs and conflicts) with resentment and hostility. These negative feelings arouse guilt which is defended against and replaced by an overprotective attitude toward the child. The compensatory nature of this behavior is reflected in the inconsistency with which it is applied (Waldfoegel 1957) as well as in the mother's increasing and unrealistic preoccupation and con-

cern with the health and safety of the child (Talbot, 1957) This attitude of discouraging the development of autonomous and self reliant behavior keeps the child in a state of immature dependency and fear of aggression since it effectively deprives him of the opportunity of learning to deal masterfully with his own inner feelings (including those of hostility) as well as with external events and relationships (Judge Baker Guidance Center, 1958) Of course, this complex relationship of strong interdependency covers feelings of hostility, rejection, and guilt, and results in strong anxiety about any kind of separation experience on the part of both mother and child. Eisenberg (1958) has shown that this anxiety is effectively transmitted in both directions An other complicating factor enters the picture as the child's need and striving for sexual identity begin to emerge This identification problem is intensified by the increasingly incestuous (guilt arousing) implications of his clinging relationship with his mother (Waldfoegel, 1957)

Although our knowledge of the personality dynamics of the fathers of school phobic children is somewhat limited, it appears that the children's difficulties are further compounded by the fact that the fathers of these families seem to be confused about their sexual and paternal role because of their own underlying conflicts about sexual identification (Waldfoegel, 1957) This increases the ambiguity and conflict in the family constellation from the child's point of view, complicates and interferes with his acquisition of the appropriate sexual role, and raises his anxiety level to the point where the addition of a stressful or traumatic event such as a physical illness or change in schools may precipitate the reorganization of his defenses and the development of a school phobia.

Many factors are involved in determining whether school phobia will be chosen as a means of defense rather than some other symptom Here the role of precipitating events and individual differences in anxiety level, and in the ability to handle anxiety, are especially crucial Recent research has shown that in some children school phobia does not develop until several years after the beginning of school and in other cases the child is never able to begin school at all With children of the first type analysis shows that certain signs of anxiety were always present (Judge Baker Guidance Center, 1958) and that the onset of school phobia was delayed because either the child had a higher tolerance for anxiety and/or the "triggering" combination of precipitating environmental events and family constellation did not occur until later As one would expect, in those cases where the phobic reaction develops later in life the child's personality processes and mechanisms are

in many respects different and more pathological than in the case of the younger child. However, there seems to be a basic substratum of processes and mechanisms which are common to all cases. These include a long history of hypersensitivity to anxiety, which may be manifested in a history of night terrors, phobias, asthma, or eczema (Talbot, 1957, Johnson, et al., 1941). Eisenberg (1958) has advanced the hypothesis that the intrinsic anxiety processes of these children may be different from those of other children in some constitutional way. This would be difficult to study because of the confounding effects of family constellation and other environmental factors. In any event most of these children are neurotically anxious about separation from their mothers. Their separation anxiety is reflected in their feelings of helplessness and concern for their mothers' safety when separation is threatened or accomplished (Talbot 1957, Klein 1945). The separation anxiety of the older children was not of sufficient intensity to keep them from school at the beginning but otherwise the dynamics of the separation anxiety are similar in both types of cases, i.e., severe underlying conflicts about bisexuality, repressed conflicts about castration, and repressed aggressive impulses toward the parent on whom the child is overdependent (Klein 1945, Waldfogel, 1957). One of the most striking characteristics of all these cases of school phobia is the child's excessive dependency upon one of the parents, usually the mother (Eisenberg 1958, Johnson et al., 1941, Talbot, 1957, Suttentopf, 1954). Johnson et al. (1941) present some evidence that this dependency behavior may take a different form in boys than in girls. Although the number of cases studied was small (four boys and four girls), they found that whereas the boys tended to be almost always submissive and obedient, the girls tended to be aggressively defiant at times.

Waldfogel (1957) has pointed out that owing to the fact that the parents of school phobic children have maintained their child in a prolonged state of infantilism with their inability to set consistent limits, there is a consequent nurturing of phantasies of unrealistic omnipotence in the child, so that school phobic children tend to rely upon magical thinking processes more than do their peers. This finding though not well documented as yet has important implications for those interested in studying the relationships between intellectual and personality processes.

As we pointed out earlier, although the basic family constellations and personality dynamics of school phobic reactions are similar in a great many important ways regardless of the time of onset of the symptom there are also certain consistent and meaningful differences

between the personality dynamics of children who become phobic after attending school for some time as opposed to those who cannot attend school from the beginning. The researchers at the Judge Baker Guidance Center (Waldfoegel, 1957; Coolidge, Hahn, and Peck, 1957; Judge Baker Guidance Center, 1958) were the first to study these two groups systematically. They labeled the younger group, in which acute separation anxiety seemed to be the primary symptom, "neurotic school phobia," whereas the older group, who became phobic sometime during the course of their early education, was termed "characterological school phobia."

The analysis of the differences between these two groups of children revealed that in the typical "neurotic" case the school phobic reaction constituted an acute regression "in the face of an exacerbation of a conflict." This conflict involved such elements as the growing need for autonomy and the need for a resolution of certain oedipal and bisexual problems. The school phobia in these children is more of an anxiety over separation from the mother on whom the child is regressively dependent than a phobia of the classical type. Whereas in the classical phobias the symptom often does more or less good service in containing the child's anxiety, these particular children tend to be generally anxious about all separation experiences. However, the child of this type can still be considered to be suffering from school "phobia" because he has displaced much of his anxiety and hostility from the mother on to the abstract concept "school." In summary, the children of the neurotic group have reacted to conflicts of the phallic stage of psychosexual development by displacing some of their anxiety (by means of the phobic mechanism) and by regression to a primitively dependent relationship with the mother. They are able to express their affects and fantasies relatively freely and are still anxious enough so that they remain motivated toward a mastery of their separation anxiety and fear of school.

The children in the "characterological" group, on the other hand, are in general more deeply disturbed than those in the neurotic group. In most cases the onset of the school phobic reaction was the "culmination of a long-term process." Although the personality dynamics of these children are not altogether uniform, the majority of them are "fixated" at the more primitive levels of psychosexual development. Instead of the hysterical and obsessive symptoms and the emotional lability found in the "neurotic" children, the typical characterological case relies upon the defense mechanisms of projection and externalization of his own inner feelings and impulses. In these cases the school phobia is an important part of "a more diffuse picture of general fear of the outside world." The dependency-autonomy conflicts of very early

life continue to absorb the energies of these children in a much more uncompromising way than in the case of the neurotic children. As a result, they present a rather consistent picture of an impoverished and constricted personality in which emotions and phantasy life are suppressed and social adjustment is poor. Consequently, in contrast to the "neurotic" group these children are extremely difficult to reach therapeutically.

Case Illustration of the Phobic Reaction As is evident from the review of research findings in the area of school phobia the systematic observation and study of the behavior of disturbed children in the therapeutic situation is at present the only readily available method of exploring the dynamics of the relationship between anxiety and specific fears, phobias, and other symptoms. One of the most illuminating case studies in the history of child psychology was carried out by Berta Bornstein and reported as "The Analysis of a Phobic Child: Some Problems of Theory and Technique in Child Analysis" (1949). This case richly illustrated the dynamics of the school phobia and other types of phobic reactions, and it illustrates the complexity of the phobic reaction and the fruitfulness of the psychoanalytic framework within which it was studied. Since the case report is closely reasoned and quite lengthy, no attempt is made to summarize it in its entirety. However, for illustrative purposes we give a brief schematic summary of some of the crucial antecedents, correlates, and consequents of one of this child's phobic reactions as they became clear during his analysis. For a more detailed account of the reaction and its close relationship to other events and behavior, the reader is referred to Bornstein's original account of the case.

Frankie, a boy of superior intelligence, was brought for treatment at the age of 5½ years because he had suffered from school phobia for more than two years. The major component of his phobia seemed to be anxiety about being separated from his mother. During the course of Frankie's analysis it became clear that the conflict underlying the school phobia involved his intense love for his mother and his great fear that she would abandon him. Both of these feelings were traced back to his early infancy. Even from Frankie's birth his mother had been extremely anxious about her relationship with him, and as a result of several factors in her own background she was unconsciously rejective in her relationship with her son. The mother's anxiety and unconscious rejection were communicated to Frankie in some way so that he became an anxious infant with severe feeding problems. During the period from eight or nine months to about three years of age, Frankie developed an unusually strong positive tie to his mother. His longing for her and fierce resistance to separation from her are illustrated, for example, by his intense screaming when he was forced to leave her at bedtime.

When Frankie was 3½ years of age his mother was hospitalized for

the birth of his sister. This event seemed to trigger off the series of internal reactions which resulted directly in his school phobia. By means of the analysis, Bornstein was able to reconstruct this situation. Frankie's immediate reaction to the sudden loss of his mother at a time when their relationship still had many covertly unstable characteristics took the form of a severe anxiety attack with concomitant affects of extreme sadness. His immature ego defended against the experiencing of these painful affects by repressing his love for and positive tie with his mother who, previous to this, had been his only real love object. This left his feelings of aggression and hostility unopposed at the conscious level and they were now directed with considerable intensity toward both his mother and his new born sibling. However, because they invited a retaliatory abandonment these aggressive impulses and hostile feelings were also extremely anxiety arousing. Consequently, they too were warded off and expressed only indirectly in the form of denying the existence of his sister and refusing the attentions of his mother in favor of loving his nurse (which had the effect of making his mother jealous). The counter rejective and jealous provoking behavior engaged in by Frankie also stimulated his fear of retaliatory abandonment, however, and so it was eventually replaced by the formation of his school phobic symptom. Thus his anxiety was contained by displacing it upon the school situation.

Obviously this is one of those cases of school phobia in which separation anxiety plays the major causative role. As long as Frankie's mother was present, he had living proof that he had not committed some aggressive act which would elicit retaliatory action, and he also had proof that she had not abandoned him. The diversionary nature of the symptom also relieved him of any necessity of consciously recognizing his underlying expectation of being rejected and deserted. Therefore, in some respects his school phobia was doing him good defensive service. Frankie's mother acquiesced to his phobic mechanism because of her own feelings of guilt and inadequacy, but the humiliating effect of her acquiescence increased her unconscious rejection of Frankie. Eventually her feeling of complete defeat led her to seek therapeutic intervention as the only way out of this "vicious circle."

Bornstein's therapeutic strategy, together with the therapeutic results tells us a great deal about the dynamics of this particular syndrome. After an initial period in which her therapeutic efforts were focused on increasing Frankie's motivation to rid himself of his symptom, she concentrated on the interpretation of all play themes in which Frankie's ego was represented. An example of such a theme would be one in which the hero was a lonely boy. Her interpretation of all these themes resulted in a steadily increasing ability to tolerate the conscious experience of sadness on Frankie's part, until finally he was able to face his fear of abandonment on a conscious level. As a result the hostile and aggressive feelings which had been repressed came to the surface. Bornstein was then able to concentrate on pointing out the contradiction in his attitudes toward his mother. Consequently, his compensatory tie to his nurse was loosened and he ceased trying to arouse his mother's jealousy. Following this development, his jealousy of his sister became conscious. Once he learned to accept and deal with this feeling of

jealousy of his sister and its various causes and implications his hostility toward his mother diminished so that the underlying positive tie to her was left free to rise to the surface. The appearance and conscious acceptance of these positive feelings toward his mother was immediately followed by a dramatic disappearance of his school phobia.

This is an example of how the school phobic symptom was formed in complex interaction with many environmental and internal factors. Events following the release of the school phobia showed that it was merely doing defensive service against the anxiety aroused by pervasive underlying conflicts. Before Frankie could be helped to resolve these conflicts his overburdened ego found it necessary to deal with them by the formation of other neurotic symptoms. For example it was necessary to spend many therapeutic hours in the treatment of two other phobias which developed after the release of his school phobia: a wolf phobia and an elevator phobia. During the treatment and release of these symptoms it was learned that they were serving as a protection against the experiencing of anxiety about castration which in turn was linked to primitive conflicts involving his fear of abandonment, his love for his mother, his sexual curiosity and active-phallic behavior and his repressed hostility toward his father.

Parenthetically it is important to note that insight into the dynamics of Frankie's phobic reactions was acquired only through many hours of patient and competent therapeutic treatment over a period of more than one year. The weakened ego of such children is slow to relinquish its neurotic ways of defending against anxiety and is persuaded to do so only after the many new learning experiences provided within the therapeutic setting have given the child insight into his problems and confidence and skill in dealing with his anxiety in less pathological ways.

Other case studies of phobic children which are especially relevant to the study of anxiety in children include the two classics reported by Freud: "Analysis of a Phobia in a Five Year Old Boy" (1925a) and "From the History of an Infantile Neurosis" (1925b). The two cases are reviewed and compared in Freud's discussion (1949) of the interrelationships between "Inhibitions, Symptoms and Anxiety." The first child analysis which was reported in complete detail was Jenny Hall's analysis of a case of night terror (1946). She discusses the general relationship between night terror and general anxiety as well as the dynamics of burglar phobia and the fear of staying alone. Fraiberg (1951) has reported an interesting case of the transference of a dog phobia in a seven year old girl.

Good case reports of phobias in very young children are somewhat rare but two such cases have been reported by Sperling (1953) and Wulff (1932). They deal with the development and treatment of phobias in 2 and 1½ year-old children respectively. The former is an

especially good presentation of the formation and function of an animal phobia in a very young girl Bornstein (1934) has also reported the case of a phobia in a $2\frac{1}{2}$ year old child

We are not presenting a summary of any of these cases at this point because, although there is considerable variability in the specific details of the cases of different children, the main dynamics of the phobic symptom and their relationship with anxiety do not differ in any important respect from those described in our detailed discussion of Bornstein's case

Character Formation and the Phobias of Childhood Wilhelm Reich wrote brilliantly about the problem of character formation (1931, 1949) From an intensive study of some 20 cases he formulated the concept of "character resistance," a concept central to his discussion of the characterological effects of the phobias of childhood The following ten statements about character resistance serve the dual purpose of defining what he means by character and differentiating this kind of resistance from the other types often spoken of by psychoanalysts

1 The expression of character resistance "does not vary with the material being produced but is typical and constant, taking the form of a general attitude manner of speech, gait, affectations and peculiar ways of behaving"

2 The significant thing is not *what* the patient says and does, but *how* he speaks and acts not *what* he reveals in dreams, but *how* he censors distorts and disguises

3 The individual's character resistance "remains constant in type in spite of varying material"

4 The individual's character resistance is just as susceptible to resolution by analysis as is the presenting symptom It can be traced back to infantile experiences and instinctual interests just as can the symptom

5 "At the appropriate moment the character of the patient becomes a resistance (that is) in ordinary life character plays a part similar to that played by resistance in treatment"

6 "those apparently incidental situations which character resistance brings about in analysis are exact recapitulations of the situations which in childhood instituted the process of character formation"

7 "Character resistance consists of a combination of the defensive function and the transference of infantile relations to the environment"

8 From the economic point of view, both character in daily life and character resistance in analysis serve the purpose of avoiding painful taming psychological (though possibly neurotic)

equilibrium, and finally, the absorption of that quantity of instinctual energy which has undergone or escaped repression (release of damned-up energy, etc.)

9 "In character, as in neurotic symptoms, the past, the infantile, are conserved, they live and are effective in the present"

10 "The consistent resolution of character resistance is bound to give direct access to central infantile conflicts"

Reich describes how characterological behavior is derived from childhood experiences and how this behavior develops into resistance in the analysis. He found that the analysis of the character resistance always led to its origin in certain specific infantile situations. It turned out again and again that one of the most important and ubiquitous of these situations was an infantile phobia. He cites several examples of cases in which infantile phobias were overcome and replaced by character attitudes of various types. One of these cases was one in which the patient's character resistance was manifested in a complex of behavior and attitudes which Reich called "lordly"

The display of refined behavior in our "Lord" also served to bind an essential amount of genital anxiety. The analysis of this process revealed a hitherto little known fate of the infantile phobia. Between the ages of three and six, the patient had suffered from an intense phobia about mice. In its center was his feminine attitude toward his father, which was a regressive reaction to his castration anxiety. This was connected with the typical masturbation anxiety. The more the boy built up the lord phantasy into the lordly behavior the more did the phobia recede, until finally nothing was left of it except a trace of apprehensiveness at bedtime. When, during analysis, the lordliness was undermined, the mouse phobia and the castration anxiety reappeared in an affective manner. Obviously, part of the libido, or anxiety, of the phobia had been woven into the character attitude (Reich, 1949, pp 183-184)

This is one example of how a child's phobic reaction can be replaced by a type of armoring against the outer world and the experience of anxiety, here, the pervasiveness of the refined behavior served to contain his infantile anxiety.

Reich also speaks of another common situation where the child's phobia leads to a passive feminine orientation. The following case is an example of this type of reaction and is also a further illustration of the transformation of a phobia into a character attitude.

This compulsion neurotic showed a complete affect block. He was equally impervious to pleasure and displeasure, a living machine. Analysis showed this affect block to be chiefly an armoring against his intense sadism. True, he still had sadistic phantasies, but they were dull and lifeless. The motive of the armoring was an equally intense castration anxiety which, however,

did not manifest itself in any other way. The analysis could trace the affect block back to the day of its origin. The typical infantile phobia in this case was with reference to horses and snakes. Up to the age of six, the patient had night terrors almost nightly. Particularly often, he had a nightmare of a horse which bit off one of his fingers. One day he simply decided no longer to be afraid, and the next dream in which a horse bit off one of his fingers was entirely free from anxiety. At the same time, the affect block developed; it took the place of the phobia. It was not until after puberty that he again had occasional anxiety dreams. Now as to the peculiar decision no longer to be afraid. His whole life was determined by similar decisions, he could do nothing without making a specific decision. The basis of his decisiveness was his anal tenacity and the strict parental demand for self-control. Anal tenacity was also the energetic basis of his affect block. The most important components of the affect block, then, were his anal tenacity and his reaction against his sadism, thus armoring absorbed his sadistic energy as well as his intense infant anxiety (his phobia, etc.). Only when analysis had penetrated the wall of his diverse repressions and reaction formations did it arrive at the intense genital incest desires (Reich, 1949, pp. 184-185).

In conclusion, Reich's thoughts on the relationship between early phobias and character formation can be summarized as follows. The child experiences painful amounts of anxiety due to some conflict between libidinal strivings and the prohibitions of the superego and/or the external world. The ego deals with this conflict by repressing these anxiety arousing impulses, and this results in a momentary strengthening of the ego and an elimination of anxiety. But owing to the overwhelming strength of these repressed impulses, a breakthrough of the repressed often occurs (usually in connection with some precipitating event from the external world). Such a breakthrough may be manifested in the development of a phobia of some kind. When the ego is forced to contain the anxiety resulting from such a breakthrough of dangerous impulses in this particular way, it is weakened because the phobic reaction drives it further from a realistic interaction with the environment. This weakening in the ego's "reality testing" is anxiety arousing in itself so that the ego focuses upon defending against the phobia, and this is the point at which the phobia is eventually mastered by the formation of a neurotic character, the specific nature of which is predetermined by existing personality and environmental phenomena. Because the resultant set of characterological attitudes and defenses was formed so as not to conflict with either internal or external factors, in many respects it is a more realistic solution than the original phobia, and so strengthens the ego. Reich comments that such character formation usually occurs during the latency period. Where the child's character has been molded in this way during the latency period, it tends to disintegrate with the onslaught of adolescent con-

flits. This proves the insufficiency and lack of resilience of the child's "character armor." Immediately following the breakdown of the character armor at adolescence, there is always a reappearance of the old phobia or the formation of some corresponding symptom. This, in turn, is followed by a fresh attempt at mastery of the phobic anxiety by means of a more complex (and often more constricting) kind of character armoring.

Relevance of Findings for Our Hypotheses. Our discussion of the theoretical aspects of the relationship between phobias and anxiety revealed many similarities between the development of childhood phobic reactions and the development of test anxiety as we have discussed the latter in the preceding chapter. One might ask whether we are speaking of "test phobia" rather than "test anxiety." Although it is clear that our review of the clinical evidence about the dynamics of the phobic reaction shows that they are basically similar to the dynamics we have postulated for test anxiety, there is at least one obvious difference between the two reactions: the child who is test anxious is able to stay in the test situation, whereas the child with a chronic, untreated phobia avoids the object of his phobia at almost any cost. Of course, this point does not preclude the argument that test anxiety as we have defined it is a less blatant form of test phobia. It is true, however, that the *functional* implications of the two types of reactions are quite different. The child who has a phobia about taking tests will not allow himself to take a test, so we have no way of measuring the effect of his anxiety upon his test performance. But in the case of the child whose anxiety level is raised by tests to some point below that level which would drive him completely out of the situation, we are able to study the relationship between the level of his anxiety and the way he performs on the test.

If phobias and test anxiety are qualitatively similar, and they differ only in a quantitative sense, it follows that the knowledge obtained from the many longitudinal studies of cases of childhood phobias provides us with a body of evidence which is highly relevant to our hypotheses about the dynamics of the test anxious reaction. Even if one holds that the reactions are not *qualitatively* the same, the points of similarity are still numerous enough so that, at the very least, the study of childhood phobias provides us with some general idea of the validity of our hypotheses about the underlying dynamics of test anxiety.

It might be argued that test anxiety is not a phobic-like reaction, because the phobic symptom serves to limit the child's anxiety to one particular object or situation. That is, although he "panics" when faced with the object of his phobia, he is otherwise not an anxious child. On

the surface this would seem to separate phobias from test anxiety in a basically qualitative way because we have hypothesized that the test anxious child would be generally anxious in many situations (see p 18) However this is exactly what one would predict if one considered test anxiety to be a basically similar but less blatant form of phobia Case studies of the phobias of childhood have shown that as the phobia is "loosened" in analysis and as the child gradually becomes able to face contact with the object of his phobia (though still experiencing a high level of anxiety in so doing) his general anxiety level in other situations increases (e.g. see the case of Frankie discussed by us in this section) Thus the fact that the test anxious child is also generally anxious in many situations is not incompatible with the view that he is in a less pathological phase of the development of a test phobia In any event although the question of whether test anxiety is a phobic reaction in the formal sense may be somewhat debatable the two types of behavior have sufficient points in common to enable us to feel safe in stating that the well-documented finding that phobias are developed as a result of and maintained by a complex set of interacting forces the majority of which are unconscious, supports our thesis that test anxiety is developed and maintained in a similar way

In the preceding chapter we stated that our hypotheses about the nature of test anxiety should also apply to the school phobic reaction Our review of the literature on school phobia has revealed that there are two distinct types of school phobia a "neurotic" type (illustrated by the Frankie case) and a "characterological" type Since we consider test anxiety as a neurotic rather than a characterological reaction we would expect our hypotheses to be relevant mainly to the neurotic type of school phobia Our summary of the findings from studies of this type of reaction has shown that wherever they bear upon our hypotheses in any direct way they support them impressively

As we predicted the hypotheses which are relevant to both test anxiety and school phobia are primarily those which involve the child's relationship with his parents We have seen that interpersonal relationships within the family constellation are clearly and importantly involved in the development and maintenance of school phobias of the neurotic type The finding that strong conflicts involving dependency and hostility are inevitably involved in these relationships and that the compensatory interdependence between the child and important figures in his family constellation always covers intense feelings of hostility rejection and guilt strongly supports our hypothesis about the role that these variables play in the development and maintenance of

the test anxious reaction. In particular we hypothesized that the perception of underlying attitudes of rejection and covert threats to the fulfillment of his normal dependency needs would ultimately result in the fact that the test anxious child would repress hostile feelings toward his parents and become overdependent upon them for approval, direction and support. The findings show that this is also one of the major factors responsible for the development of the separation anxiety involved in the school phobic reaction. In addition the fact that compensatory dependency behavior is especially prominent in the school phobic child also enables us to see clearly the serious effects such behavior has upon the development of an appropriate sex role identity and the satisfactory resolution of oedipal conflicts. Inasmuch as we have shown that the school phobic and test anxious reactions have much in common it follows that we should also find that test anxiety is significantly related to confusion in sex role identity, conflicts about castration, etc.

There is some evidence for sex differences in the personalities of school phobic children and this seems to result largely from the different implications which extreme dependency behavior holds for boys and girls in our culture as they enter the latency period of psychosexual development. In general the maintenance of an intense dependency relationship with the mother would seem to have more dangerous implications for the boy in our culture than for the girl. This in turn should have differential effects upon their personality development. Among other things one might expect boys to acquire a more intense emotional investment in such a relationship so that they could afford to express overtly and covertly forbidden sexual and aggressive impulses to a much less degree than could girls. If such were the case among other things one might then hypothesize that test anxious boys would have more constricted personalities than test anxious girls.

The extremely important finding that the phobias of childhood frequently underlie the defensive process which Reich terms "character armoring" has significant implications for our research on test anxiety. It may be recalled that in his studies of these rigid and constricted personalities Reich found remarkable examples of how the ego continually strives for ways of eliminating the necessity of experiencing painful amounts of anxiety even when the achievement of such a goal appreciably reduces the creative and productive capacities of the individual. Since test anxiety is in a great many respects a milder form of the phobic reaction we would expect some analogous process going on within the test anxious child. However the question of whether the test anxious reaction is eventually replaced by some form of character

armorings similar to that found by Reich for childhood phobias can only be answered by long term studies of individual test anxious children. Naturally, if some such process does occur, then just as the character armorings which is precipitated by phobias has certain specific and measurable effects upon the individual's behavior in many different situations, we would also expect that the erection of such characterological defensive structures against the experience of test anxiety would have analogous far reaching effects upon the child's development and behavior.

THE EFFECTS OF ANXIETY UPON INTELLECTUAL PERFORMANCE

One of the major hypotheses discussed in the previous chapter concerned the relation between test anxiety and intellectual performance. Essentially we presented two hypotheses. The first stated that particularly when the test anxious child has to function independently in a problem solving situation his performance will be adversely affected. The second asserted that when the problem solving situation is structured so as to allow the strong dependency needs of the test anxious child to be satisfied, his performance will not manifest the adverse effects of anxiety. Underlying these hypotheses is the assumption that the experience of anxiety in a problem solving situation prevents dispassionate awareness and responsiveness to the external task, i.e., anxiety involves more awareness of self than of the external situation.

Although the test anxious reaction has been discussed by several workers primarily within a psychoanalytic framework, there are no data which would allow one to evaluate our hypotheses (Redl, 1933; Liss, 1944; Sears, 1943). In these discussions it is assumed that the test anxious response has primarily an adverse effect on intellectual performance but there is little discussion of the conditions under which the performance of the test anxious child will not be adversely affected. A notable exception is a discussion by Shands (1954), which encompasses the two hypotheses presented above. He pointed out that the interfering effects of anxiety upon performance may be minimized or prevented by "1) the availability of a pattern of behavior or 2) by the availability of a pattern of a relationship, i.e., of dependence upon some other person." In order for the anxious child to carry out complex mental processes especially in situations which are in some respect stressful, "it is necessary that [he] have available a supportive pattern of relationship to depend upon through the learning period."

Shands maintains that one of the significant aspects of the anxiety arousing situation is the fact that it involves "the problem of making a selection among various possible patterns of behavior." It seems as though this problem is diminished whenever the situation includes a supportive individual on whom he can depend for cues as to the appropriate pattern of action required by the situation. This is another way of emphasizing the importance and complexity of the interdependence between intellectual and emotional aspects of the personality.

In the following pages of this section we review the findings in the research literature which are relevant to the relationship of anxiety to intelligence (as measured by intelligence tests), problem solving, concept-formation, and learning. Unfortunately, there have been no studies which focused on a measure of test anxiety. However, since we have assumed a significant relationship between test anxiety and general anxiety, the fact that the studies to be reviewed have utilized either clinical like or omnibus measures of anxiety in children requires us to see what relevance they may have to our own discussion of the problem.

Anxiety and Intelligence In a previous section we reviewed the research findings relevant to the relationship between children's fears and intelligence. Our review of the empirical collections of children's fears revealed relatively little evidence about the incidence and content of fears at different intelligence levels, but what little there was indicated that brighter children have more fears and that they tend to fear actual dangers in their environments whereas duller children tend to have more fears of stimuli with which they could not possibly have had any personal experience. These studies together with the only study of children's fears which was specifically interested in the relationship of children's fears and intellectual level (Boston, 1939) seemed to point up the possibility that a relationship exists between superior intelligence and the sensitivity to danger. Thus, the less intelligent children would have fewer fears because they were not as alert to various subtle and covert cues. Of course as we pointed out there are other possible explanations such as that the superior children may have been better able to verbalize their fears as a result of their greater facility with verbal symbols. It is also possible that the lower scores of the "duller" children already reflected the interfering effects of anxiety. In general, however, the studies in this area have not been adequately designed and controlled, so the findings should be considered as only suggestive and subject to further validation.

Kent and Davis (1957) studied the relationship between perform

ance on intelligence tests and discipline in the home. Three groups of English children were studied: 118 eight year old school children, 55 juvenile offenders with a median age of 12 years, and 40 child patients of a psychiatric outpatient clinic who had a median age of 9 years. The results revealed that children from "demanding" (in terms of discipline) homes had significantly higher Stanford Binet IQs than did the children from homes rated as "normal". The authors suggest that since these children from demanding homes had only slightly higher scores on the other tests, the particular skills measured by the Stanford Binet at these age levels (primarily verbal in nature) "appeared to be fostered by a demanding environment". They also pointed out, however, that "these children tended to be emotionally disturbed and went to pieces over unfamiliar tasks". Probably more relevant to our purposes, the children from homes rated as "overanxious" tended to perform poorly on the Wechsler Performance subtests, and normally on the Binet test, they also tended to be restless and anxious, requiring much reassurance. Also of relevance is the fact that the children from homes rated as "unconcerned" performed poorly on all the tests. This is relevant because these children were described as "apathetic and lacking in spontaneity," and "they gave up easily when failure was imminent". The authors conclude that performance on the intelligence tests utilized in the study is significantly affected by the type of discipline in the home. Of interest for us is the fact that certain aspects of the child's home climate are significantly related to his anxiety level and personality and that these seem to mediate between the home variables and test performance.

Lightfoot (1951) studied the personality characteristics of 104 New York City children. It was found that 19 per cent of the bright subjects answered the item "Are you very much upset before taking a test?" in the affirmative, whereas 34 per cent of the dull subjects answered in the affirmative, indicating a negative relationship between test anxiety and intelligence. This relationship was evident only in the case of boys, it should be noted.

Several recent studies shed light upon the relationship between intelligence and "general anxiety" as measured by questionnaires. Kerick (1956) investigated the effects of manifest anxiety and IQ on discrimination. The effect of increased anxiety on the high IQ group was to make them less discriminating, whereas the reverse was true of the low IQ group. One of Kerick's conclusions was that "the intelligent subject seems to become more all or nothing in his responses when he is anxious, while the unintelligent subject becomes more cautious or uncertain in his judgments". To the extent that this con-

clusion is valid, it implies that the role played by anxiety varies in some systematic way with the development of certain other ego functions

Castaneda et al (1956a) have developed a children's form of the Taylor Manifest Anxiety Scale which they have used as a measure of anxiety in a series of studies of the behavior of school age children*. In general, no relationship has been found between anxiety, as measured by the Iowa scale and intelligence (McCandless and Castaneda, 1956, Trent, 1957), although McCandless and Castaneda did find a significant relationship between anxiety and intelligence for sixth grade girls. In addition, Trent found that a tendency to deny anxiety (as measured by a lie scale embedded within the anxiety scale) was negatively related to intelligence. Stratton (1927), using self rating scales applied to actual past occurrences of emotional situations, also found no connection between strength of self rated fear and intelligence test results

On the other hand, using scores on the Woodworth Cady Questionnaire and teacher ratings as their measure of anxiety, Keys and Whiteside (1930) found that children in grades 6 to 8 who were high anxious* were nearly two years lower in mental and educational age, and some eighteen points lower in IQ as compared with their more stable classmates. Many of the items of the Woodworth Cady Questionnaire are quite similar to those of the Yale General Anxiety Scale, this scale is described in the next chapter

Amen and Renison (1954) report a study in which anxiety was measured by a projective technique. The Stanford Binet IQ's and anxiety scores of the children in their study were positively correlated ($\rho = .77$). The authors concluded that this showed that "the more intelligent child can recall frightening experiences vividly and project them into the future as potential sources of threat". They also thought the relationship implied "the possibility that anxiety and intelligence both depend upon some aspect of memory". However, perhaps the scores obtained on their "Anxiety" pictures test may be simply another reflection of intelligence rather than a valid measure of anxiety. Aside from this criticism, since only 12 subjects were studied, the project should be replicated before the conclusions and (especially) the degree of correlation are taken seriously.

Studies reporting a positive relationship between intelligence and

* Note: This anxiety scale differs from the Yale Anxiety Scales primarily in item content: the latter emphasizes "feeling" and "worry" items and the former utilizes items which are more neutral or "disguised". Format and method of administration also differ considerably. (See p. 114)

variables either inferentially or directly connected with anxiety are the empirical studies of fear (e.g., Boston 1939), the study of intelligence and metabolic rate (Lund, 1940), and the study of the relationship between intelligence and anxiety as measured by a projective technique (Amen and Renison, 1954). None of these studies have been adequately replicated and all of them are subject to serious methodological criticisms which leave open the possibility that the obtained relationships are either spurious or due to chance factors. Of the studies which found no relationship between anxiety and intelligence two used measures which are only inferentially related to anxiety. These were the studies of will temperament (Oates, 1928), and self-rated fears of past emotional experiences (Stratton, 1927). The studies using the Children's form of the Manifest Anxiety Scale (McCandless and Castaneda, 1956, Trent 1957) also report no relationship between their anxiety scale and intelligence.

Studies which report results compatible with the conclusion that anxiety interferes with intelligence are much larger in number than those reporting a positive relationship or no relationship at all. In general, the sophistication and the scope of these studies are also more impressive. Evidence that anxiety interferes with intelligence test performance, in general, is reported by several studies (MaeKaye, 1928, Beizmann 1952, Jewett and Blanchard, 1922, Sontag et al., 1955). Two studies give evidence of the specific nature of the interference in that they show that anxiety is especially interfering in such tasks as block design reproduction of designs from memory, and the Performance subtests of the Wechsler Intelligence Scale for Children (Granick 1955, Kent and Davis 1957). Keys and Whiteside (1930) found that general anxiety (combined teacher ratings and questionnaire) is negatively correlated with intelligence. Lightfoot (1951) reported evidence that test anxiety impairs intelligence test performance of boys, but not of girls. Finally, the study of Sontag et al. (1955) provides evidence of the fact that anxiety has interfering effects which are long range rather than momentary, and that certain systematic and dynamic personality factors underlie the development of the anxiety. In view of the quantity and quality of the evidence from this group of studies we feel that the hypothesis that anxiety does have some type of interfering effect upon intellectual performance is justifiable. The literature sheds no light on the hypothesis that under certain conditions anxiety may have a facilitative effect on intellectual performance.

Anxiety and Other Problem Solving Processes In this section we review those studies which deal with the relationship between anxiety

and various problem solving and learning processes other than intelligence test performance. Since we are reviewing only those studies which deal with children's behavior, and since few such studies have been reported in the research literature, our review will necessarily be quite short.

Castaneda et al (1956b) report a study which was concerned with the performance of 21 high and 16 low anxious fifth grade children on easy versus difficult components of a complex learning task. The main finding of the study was a statistically significant interaction between anxiety and task difficulty. This interaction was based on the fact that the high anxious children, in comparison with the low anxious children, tended to perform better on the easy components and at an inferior level on the difficult components. However, further statistical tests indicated that only the difference between the anxiety groups on the difficult combinations was statistically significant. Since there is reason for assuming that there are sex differences in various types of problem solving tasks, it is important to note that 12 of their 21 high anxious children and 10 of their 16 low anxious children were girls. Unfortunately, the hypothesis that the performance of their girls accounted for some part of their difference cannot be checked since the authors report no data on sex differences. In addition, the fact that the authors failed to control for intelligence becomes crucial in view of the fact that the difference between anxiety groups was statistically significant for the hard items but not for the easy items. This study should be replicated with sex and intelligence controlled before its conclusion is accepted.

The same authors (Palermo et al, 1956) report a study which is closely related to the one just discussed. Here they were primarily concerned with the relation of motivational level (they and the other Iowa workers consider the score on their anxiety scale as a measure of drive) to performance in a trial and error learning situation similar to the one described above. The main finding was that the high anxious group made significantly more errors over all than did the low anxious group. However, for both the high and low anxious groups there was a significant decrease in errors over blocks of trials. Equal numbers of boys and girls were used and no statistically significant relationship between sex and the other variables was found, but again they failed to control for intelligence so that it is possible that their group of high anxious children were less intelligent than their group of low anxious children. This could have been the basis of their main finding that the high anxious group made more errors.

The results of Jean Kerck's study (1956) which were discussed

in the previous section (see p 68) are also relevant here. It may be recalled that she found that the effect of increased anxiety on the high IQ group was to make them less discriminating whereas the reverse was true of the low IQ group. The conclusion was that the anxious, intelligent subjects in responding to the discrimination task were either impulsive or did not respond at all, whereas the less intelligent anxious subjects were generally cautious and uncertain in their judgments.

Piaget has written extensively about various aspects of children's thinking and problem solving. He has shown that children go through a stage of thinking in which their own psychic qualities are attributed to objects and people and accepted as real and absolute qualities of those objects (Piaget 1930). He calls this type of thinking "infantile realism," but others have termed it magical or animistic thinking. Odier (1956), in an effort at a *rapprochement* between the theories of Freud and Piaget, has stressed the central role which anxiety plays in the inception and continuation of this type of thinking. According to Odier's formulation, anxiety, by exerting a dissociative action on consciousness, causes the more logical thought processes to revert to their original "magic level" and so regularly revive infantile animistic or magical ways of thinking. To illustrate his formulation, he points out that, in the face of painful amounts of anxiety, clinical patients react in one of two ways:

The first is a kind of magic logic resorting to preventive or superstitious modes of prelogical thinking to avert danger or abolish its consequences. The second is a magic logic using a negative or unlucky mode. These patients show an extraordinary miscarriage of instinct—instead of minimizing the danger and negating its existence, their prelogical thinking enhances and aggravates its dangerous consequences.

Odier also proposes that magical thinking can produce anxiety as well as result from it, which sequence occurs depends on the complex interaction between the child's history of intra- and extrapsychic experiences. As we have stressed in our own formulations, Odier observes that "the prolonged existence of magic thinking and anxiety sooner or later produce what I should like to call the syndrome of ego dysfunction." The three main components of this syndrome include feelings of helplessness, of insecurity, and of self devaluation. It may be recalled that we have hypothesized that these feelings are especially characteristic of the test anxious child. Finally, Odier states that "the *primum movens* of magic thinking, the factor most capable of stimulating its activity, is found in the early fears of the child in his feelings of danger, insecurity, and helplessness." Despite its po-

tential importance for the psychology of thinking no well controlled research has been carried out in this area Blachowski (1937) asked high school and university students to state whether they had ever had or now had a belief in magical practices particularly in connection with the school situation Although the study was not adequately controlled Blachowski felt that the analysis of the questionnaire responses pointed up the probability that the origin of the magical practices was connected with the fear and anxiety with which school children often meet the frequently unfamiliar situations in school In particular, "Examinations because they re arouse the fears and dreads of earlier years often continue to excite the magical practices longer than other situations

Cowen and Thompson (1951) report a study that provides indirect evidence of a relationship between problem solving behavior and anxiety Specifically, their study was designed to test the hypothesis that "psychological rigidity the tendency to adhere to previously practiced methods of problem solution pervaded all aspects of an individual's behavior They administered the Bell Adjustment Inventory the California Test of Personality and the Rorschach to 17 "rigid" eighth graders and 17 "flexible" eighth graders The personality factors which seemed to be related to their measure of rigidity were

limited productivity and imaginativeness diminished resourcefulness in ability to perceive complex relationships and to integrate constructively a generalized suppression of emotional expression with respect to both inner creativity and interaction with the outer environmental reality an inability and hesitancy to enter psychologically new situations combined with a feeling of uncertainty and lethargy when actually in such situations a tendency to "leave the field" when the going gets difficult a restricted range of interests and narrower sphere of function and a poorer adjustment to society

In general we have hypothesized that all of these qualities are in one way or another characteristic of the test anxious child or of the child who is test anxious but who denies his anxiety The findings of this study, therefore seem to support (at least in an indirect way) our hypothesis that the test anxious child is rigid and noncreative in his problem solving and other intellectual processes

Somewhat related to the above is the study reported by Smock (1957) on "The relationship between intolerance of ambiguity generalization and speed of perceptual closure" In general Smock felt that the findings suggested that anxiety is an important determinant of "intolerance of ambiguity" This hypothesis needs further verification, but to the extent that the evidence is valid it fits in with the

suggested relationship between anxiety and problem solving rigidity found by Cowen and Thompson. The relationship between the behavior which is described by such terms as rigidity, intolerance of ambiguity, etc., and anxiety certainly deserves careful and intensive study by workers interested in the relationship between intellectual and personality processes. It is important to point out that implicit in our own discussion of the relation (in high anxious children) between dependency needs and problem solving is a concept of "intolerance of ambiguity" in the sense that the strong dependency reflects a need to have the interpersonal situation so structured that the test anxious child will know precisely what is expected of him, i.e., what is right and what is wrong. Where such expectations are not clear (as in the Rorschach situation) and the test anxious child is expected to resolve the ambiguity in an independent fashion, we would expect the adverse effects of anxiety to be most apparent.

Anxiety and School Achievement In this section we review those studies which have some bearing upon the relation between anxiety in children and their achievements in the school situation. As we pointed out in the last chapter, the relationship is extremely complex and this is no doubt one of the major reasons for the paucity of experimental evidence in the area. We are limiting the present review to experimental and correlational studies of these variables since the relevant theoretical papers are discussed in the sections on school phobia and learning inhibitions (see p. 50).

Several studies have reported evidence of a negative relationship between anxiety and achievement in the school situation. McCandless and Castaneda (1956) found that of the 30 computed relationships between anxiety score and various achievement areas, one was of zero magnitude, another was at the .05 level, and the remainder were all in the negative direction. Of the latter, 13 were statistically significant. In general, the achievement area most susceptible to the interference of anxiety seemed to be arithmetic computation. In addition, after studying the sixth grade population separately, the authors found that "a small contribution to prediction of academic achievement by the anxiety score, over and above the predictive efficiency of intelligence score alone was found for sixth grade boys and girls."

In a similar study, Keys and Whiteside (1930) obtained the finding that children who were characterized as anxious "displayed a strong and reliable tendency to average more than one year retarded in age grade standing, and nearly two years lower in mental and educational age." In general, they report, "when children of like sex, age, intelligence and nationality, but widely different nervous and emo-

tional traits are compared the nervous and emotional tend to average appreciably lower in grade placement and educational achievement than the emotionally stable " These two studies provide some support for our hypotheses about the basically interfering effects of anxiety upon school achievement

In comparing underachievers with overachievers Kimball (1953) studied four groups of ten boys each. One group consisted of boys with high IQs and low grades (underachievers), a second was made up of boys with high IQs and high grades (control group), boys with low IQs and high grades (overachievers) made up the third group and the fourth consisted of boys with low IQs and low grades (control group). These subjects were also compared with a randomly selected group of 100 boys from the total population. The main findings were that the underachievers differed from the normal achievers, the overachievers, and the total population in that they had essentially negative relationships with their fathers also, in contrast to the normal achievers and the overachievers they had a "pronounced tendency toward passivity." The underachievers differed from the total population (although not from the overachievers) in that they were guilty and anxious about the expression of physical aggression toward animate objects, they were "less able to give direct, effective expression to their negative feelings", they were possessed with feelings of inferiority, and they frequently had histories of asthma and hay fever. Both the underachievers and the overachievers differed from the normal achievers in showing a tendency toward feminine identification. With respect to anxiety (as revealed by Rorschach signs), Kimball reported that the level of anxiety among the underachievers did not differ from the level of anxiety of the normal achievers although the overachievers revealed a greater amount of anxiety than did their controls.

Kimball's findings with respect to the personality characteristics of the underachieving child are supported by the results of a study reported by Walsh (1956). Walsh was interested in identifying some of the specific emotional components involved in the learning difficulties of boys. He approached the problem by designing a study of the self concepts of bright boys who were underachievers in the classroom. In two groups of bright boys Walsh found that as distinguished from adequate achievers, low achievers in a doll play situation tended to portray the boy doll as restricted in action, unable to express his feelings appropriately and adequately, being criticized, rejected or isolated and acting defensively, through compliance, evasion or negativism. It is especially interesting that Walsh's underachievers

(as with Kimball's underachievers) were unable to give direct expression to their negative feelings

Kimball's study together with one reported by Oates (1928), is highly relevant to our hypotheses about the personality characteristics of the test anxious child in that underachievers and overachievers were found to have important personality characteristics in common (problem in sex role identification, feelings of inferiority, etc.) The fact that Kimball reports that they differ in level of anxiety is also relevant to and supportive of some of our conceptions about test anxious and non test anxious children

Conklin (1940) and Haggard (1957) have reported studies of the relations between general personality and socialization processes and school achievement in gifted children. Conklin used the case study method for his exploration of the differences between academically successful gifted children and gifted children who were not successful in their schoolwork. His general finding was that, in contrast to the successful achievers the unsuccessful children had histories of being rejected by parents and peers. Conklin concluded that the disturbance of interpersonal relationships "might easily make the child see himself as unloved and unlovable." One can also speculate that the variable of anxiety may mediate between these themes of abandonment and rejection and the child's lack of achievement in school. In addition, one might suppose that these children would fail to incorporate or identify with the values and goals of such parents, and/or the child's perceptions of parental pressure to achieve might become welded to his perceptions of their attitudes of rejection and hostility. In any event, achievement needs in such a setting would acquire anxiety arousing properties which could interfere with or inhibit various types of intellectual performance.

Haggard's study is a complex longitudinal research project which was designed to explore the assumption that "the general level of academic achievement will be related to the degree of pressure put on these children to develop academic skills and also that certain personality factors will accompany the general level of academic achievement." Haggard and his colleagues collected the following data on each of the children in their research population at regular intervals throughout the preadolescent period:

- (a) measures of parental pressures on the child to achieve academically
- (b) "projective" personality tests
- (c) behavioral observations in classrooms on the playground and at school social activities
- (d) mental ability tests
- (e) academic-achievement tests (in reading, arithmetic and spelling from Grade III on also in language skills such as punctuation and grammar from

Grade IV on), and (f) teachers ratings and reports of classroom behavior and performance

The analysis and integration of the tremendous volume of information available for each child enabled Haggard to formulate and compare the general personality patterns characteristic of the various achievement groups. These groups included the high general achievers (children who performed at a high level on all the tests) and the low general achievers. The designation "low achievers" must be taken in a relative sense as the low achievers in this group would be "superior achievers" in most classrooms.

By the time they arrived in Grade III the high general achievers were sensitive and responsive to socialization pressures, had largely accepted adult values, and were striving to live up to adult expectations. They saw their parents as being somewhat overprotective, pressuring for achievement, and lacking in emotional warmth (frequently they were correct). Insofar as they accepted many of the adult values as their own, their conformity in this respect seems to have given them a high degree of security and confidence in their relations with adults, even though they expressed some underlying resentment toward authority figures. In general, however, they showed a high degree of inner harmony, being rather adept at emotional control and at organizing and integrating their experiences, ideas, and feelings. In their behavior with others, they were somewhat more tense, competitive, and aggressive, had developed good work habits, and were persistent in them. They got along better with their parents, teachers, and peers and showed a higher level of overall adjustment than did the low academic achievers.

By Grade VII various changes had taken place in the children who remained high academic achievers. Although they continued to respond to the socialization pressures of adults and to strive toward adult standards of behavior, they had developed strong antagonistic attitudes toward adults and often pictured adults as being inadequate and ineffective. Such attitudes were not expressed by the low achievers. Thus, although the higher achievers had accepted adult norms and expectations and had shown increased surface conformity, they increasingly rejected adults as persons. At the same time, they (the high general achievers) *showed a marked increase in the level of their anxiety and a corresponding decrease in their intellectual originality and creativity*. Although there was no such difference in anxiety and creativity between high and low achievers in Grade III, a marked difference existed between these groups by Grade VII. The high achievers were able, however, to control and channel their anxiety in various ways, for example, through the intellectualization of their experiences, the mastering of new knowledges and intellectual skills. They also became more aggressive, persistent, hard driving, and competitive, and they showed signs of willingness to be aggressive and destructive in order to defeat and win over other persons. But withal, they retained a high degree of mental flexibility and spontaneity, particularly in their ability to manipulate abstract symbols.

Haggard was also able to formulate the general personality characteristics of the groups of high achievers in specific areas such as reading, spelling and language, and arithmetic. With respect to the high achievers in reading, Haggard writes

The high achievers in reading seemed to have withdrawn into themselves and to view their world and the people in it from a distance. The reactions to their parents and other authority figures were mildly negative. . . . These children were intent on maintaining their sense of integrity, as they defined it, in terms of freedom in their impulse life, creativity, and independence of thought and action. They responded in this manner without excessive guilt or concern about other people's expectations and opinions. Although generally sensitive to others, if they felt rejected, they tended to become hostile or to withdraw rather than try to conform to the ways of others. If they were hurt, they tended to retreat and to draw upon their own inner resources. These children had difficulty in expressing either affection or hostility openly, had difficulty in relating to others, and lacked the facilities for developing and maintaining such relationships.

Haggard feels that the child with this type of personality is a high achiever in reading because the set of intellectual tasks which this requires is compatible with the personality structure of the child.

A finding which is directly relevant here was reported by Lynn (1957), who was interested in the relation between anxiety and "disparity in attainment" in reading and arithmetic in English school children. His finding was that anxiety is significantly and positively correlated with reading but not with arithmetic. He suggested that his finding might be explained by "the greater amount of time which anxious children spend on reading as a way of dealing with their anxieties and finding satisfaction in fantasy." Levy's (1943) work with overprotected children is also of interest in this connection, as Plank and Plank (1954) have pointed out. It can be concluded from Levy's findings that the difference between performance in reading and arithmetic is markedly related to factors such as dependency and overprotection (Levy's overprotected children were poor in arithmetic and contrastingly superior in reading). Both Lynn's and Levy's findings are in essential agreement with Haggard's conclusions about the personality characteristics of high achievers in reading.

With regard to the high achievers in spelling and language, Haggard writes

The high achievers in spelling and language tended to view parental and other authority figures as omnipotent, rejecting, and generally punitive and not as a source of emotional support. Although these children were dependent upon their parents, they seemed unable to show real affection or to establish warm emotional relationships with them. Rather, they seemed to act on the belief that, by adhering strictly to parental rules, they could gain

their parents' acceptance or, at least, could avoid being rejected. These children were markedly passive and dependent upon outside sources for direction of their thoughts and actions. For example, when they were asked to work out new solutions in unfamiliar situations, they seemed unable to deal flexibly with the problems or to appraise them in other than a liberal, rule bound, mechanical fashion. They also showed a bland emotional life, appeared to be incapable of giving or receiving affection, and were equally inhibited in expressing hostility. They seemed to lack inner emotional resources, to have a relatively barren fantasy life, and to lack independence of judgment and the ability to act in terms of it. Although these children were, in a sense, oriented toward people, they lacked deep affectional relationships and relied on conformance and social techniques to gain apparent acceptance.

Again it is the presence of a certain unique personality pattern which enables the child to excel in spelling and language "... intellectual passivity and the obedient carrying-out of rules learned by rote are essential for success in the tasks involved in these tests." The high achievers in arithmetic are an especially interesting group of children:

The high achievers in arithmetic, those who did better on the arithmetic test than would be expected in terms of their overall level of achievement, tended to see their environment as being neither threatening nor overwhelming. Rather, they viewed it with curiosity and felt capable of mastering any problems they might encounter. In viewing their parents and other authority figures, and in their relations with them, they showed less strain than the high general achievers and by far the best-developed and the healthiest egos, both in relation to their own emotions and mental processes and in their greater maturity in dealing with the outside world of people and things.

The high arithmetic achievers could express their feelings freely and without anxiety or guilt, were emotionally controlled and flexible, and were capable of integrating their emotions, thoughts, and actions. Similarly, their intellectual processes tended to be spontaneous, flexible, assertive and creative. Of the subgroups studied, the arithmetic achievers showed the most independence of thought, were best maintaining contact with reality and at avoiding being bound by its constraints, and could function most effectively in the realm of abstract symbols.

In his analysis of the types of skills required for high arithmetic achievement, Haggard wrote that it "requires active, controlled intellectual manipulations which do not have the freedom of unstructured and unrestrained fantasy but which do permit the individual almost endless originality and creativity in organizing the symbolic elements into new syntheses."

The findings reported by Plank and Plank (1954) from an analysis of the autobiographies of mathematicians and those gifted in arithmetic were as follows:

learning of mathematics becomes blocked when the first and strongest object relationship cannot be renounced and therefore symbols cannot replace objects—where the strong preoedipal tie to the mother continues intact.

The computational prodigies display an obsessional element, of which this at least can be said that it goes hand in hand with a very weakened relationship to the mother. They form a bridge, as it were, to emotionally isolated children with compulsive interest in numbers. This interest is a flight into a world of abstractions in these children, who never learned to establish satisfying object relationships.

The pattern that emerges from the memories of women mathematicians is clearer and simpler than that of male autobiographies. The women's interest in mathematics can easily be traced to a strong identification with a masculine figure in their lives. Parallel with it, seems to go a lack of feminine identification or conflict around it.

The Planks believe that "observations of children in school tends to support the impressions gained from a larger number of autobiographies," though they agree that well-controlled studies in the area are needed before any definite conclusions can be drawn.

Regarding differences between boys and girls, Haggard found that boys tended to do better than girls in reading speed and comprehension, whereas girls tended to excel on the spelling and language tests. In addition, "boys were likely to proceed in an abstract, symbolic manner, while the girls acted in a more direct and tangible manner." Several of the children showed achievement patterns characteristic of the opposite sex. For example,

the boys in the "cross-over" group were more passive, more inhibited in expressing their emotions and so on. These cross-over children showed more inner conflict, were more loosely organized as personalities, showed greater difficulty in establishing their own sex identification and exhibited less effective all around adjustment than did the majority of the children.

One of Haggard's main conclusions supports our own conception of the major role played by anxiety in the achievement process. "Our findings indicate that the best way to produce 'clear thinkers' is to help children develop into anxiety free, emotionally healthy individuals who are also trained to master a variety of intellectual tasks." In general the Conklin and Haggard studies also tend to substantiate our own thinking about the important role which personality processes (especially anxiety) play in the child's pattern of achievements. They reinforce our views as to the complexity of the relation between test anxiety and achievement and as to the need to consider the probability that test anxiety will have different effects in different kinds of achievement situations. These two studies also support our hy-

pothesis that in the test anxious child intellectual achievement and performance are unduly related to anticipated interactions with adults owing to the fact that a central factor influencing the mode of expression of achievement needs is parental attitudes toward academic achievement (These attitudes have engendered in the test anxious child self derogatory attitudes about the adequacy of his mind—whether or not they have been expressed to the child in an overt way)

Our statement made in discussing the Kimball study (see p 75) that we would expect the interlocking effects of the anxiety of over achieving children to be manifested in the areas of creative thought and performance is well supported by Haggards findings with respect to his high general achievers. In addition Haggards picture of the child who is a high achiever in reading but not in other areas as a basically withdrawn and anxious child tends to support our hypothesis that whereas we would expect some test anxious children to be overachievers, in others the strong achievement needs would be expressed in the contents of fantasy. On the other hand the group of children who were high achievers only in spelling and language structure skills, while their dependency and passivity reveal them as basically anxious children are reportedly unable to express their emotions and have a "barren fantasy life." These children may be similar to our low test anxious but highly defensive children who (in our opinion) are basically highly test anxious but unable to admit to their anxiety.

SOME GENERAL CONCLUSIONS

At appropriate places in this chapter we attempted to indicate the relevance of the studies under review for the hypotheses presented in Chapter 2. It is not necessary therefore that we discuss again here the relevance of the literature for our hypotheses except to say that in our opinion the available evidence strongly supports our position—at the least the evidence indicates that the direction our hypotheses take is in keeping with the thinking of many workers in the field.

At this point in the chapter it seems worthwhile to state some general conclusions suggested by our review. The first such conclusion is that despite the significances which are attributed to anxiety in the development of the child systematic research on anxiety is practically nonexistent. This is less in the nature of a conclusion than a

statement of fact. It does suggest, however, that although there apparently is a close relationship between theoretical conceptions of anxiety and the clinical handling of anxiety, neither theory nor practice is securely based on research findings. This situation is in part due to the fact that those who have been most interested in anxiety have been clinicians who, understandably, are primarily concerned with problems of amelioration.

A second conclusion suggested by our review, one not unrelated to the first, is that the absence of attempts to develop measures of anxiety has made it extremely difficult to determine the comparability of findings from different studies. The absence of attempts to develop and evaluate measures of anxiety in children may not only reflect a recognition of the difficulties in going from a theoretical conception to operational terms but, more likely, the attitude that as soon as one attempts to operationalize the theoretical conception it loses much of its flavor, i.e., its diverse and interrelated significances. Although such a loss undoubtedly takes place, particularly in the beginning stages of "instrumentation," there is no reason in principle why much of this loss cannot be regained by refinements based on systematic studies reflecting an acute awareness of the need to examine and improve the congruence between one's measures and the conceptual meanings of the variable under study. For example, in our own research we have been aware of the importance of constantly recognizing that the experiential or conceptual meaning of anxiety differs from the operational meaning in that whereas the former is the "true" amount of conscious anxiety, the latter is a measure of the "true" amount of anxiety distorted by the errors of measurement. The degree and type of error depend on the type of measurement involved. Hopefully, the errors of measurement are always small enough that the operational meaning is not entirely independent of its conceptual or theoretical meaning. Of course, it is possible to approach the ideal goal only when the instruments for measuring anxiety are not only "error free" but are also derived from or based on the theoretical meaning of the term. In general, when one deals with questionnaires the sources of potential errors of measurement are easy to define but difficult to measure. A later chapter deals with this problem more specifically, so it will suffice at this point to mention that some of the most important sources of error include such variables as "lying," "set," and "acquiescence." Although these sources of error are in one sense bothersome, they are potentially advantageous characteristics of questionnaires in the sense that they reflect a variable, modes of defense, which theoretically is inextricably related to anxiety in terms of its

experience or admission. In other words, in the process of developing a measure of anxiety one is forced to recognize and come to grips with another variable, and in the process of so doing one not only increases the validity of the anxiety measure but also increases the degree to which the particular theoretical conceptions are being reflected in the research tools.

It is surprising to discover that specific manifestations of anxiety have not been studied systematically, because, even on the clinical level, we would expect such focusing to be fruitful. One can find many case presentations in which anxiety was an apparently prominent feature, but these cases differ in so many respects (e.g., family constellation, sex, age, content of anxiety, etc.) that it is difficult to compare them or utilize them as one variety of research data. An outstanding exception is the series of clinical case studies (referred to frequently in this chapter) done at the Judge Baker Clinic on children with school phobias. By focusing clinically on a group of children who were relatively homogeneous in terms of the content of their anxiety, these researchers were able to make observations and arrive at conclusions which have direct relevance for evaluating theoretical conceptions of anxiety. It was not surprising, therefore, that the findings of the study of these children provided the most secure basis in the literature for evaluating our hypotheses. The failure to focus on a specific manifestation of anxiety also characterizes the non-clinical studies we reviewed. In most of these studies the measure of anxiety was so heterogeneous in content and so unrelated to any theoretical conception of anxiety as to make it extremely difficult to evaluate what it is (or is supposed to be) measuring.

The importance of focusing systematically on specific manifestations of anxiety was one of the major reasons why we chose in our research to concentrate initially on a particular anxiety, i.e., test anxiety. In the next two chapters we present the scales we developed and describe the methodological and theoretical problems to which they give rise.

The anxiety scales

CHAPTER 4

In previous chapters we endeavored to state a number of hypotheses about the relationships which should be obtained between anxiety and other variables. Our primary focus there was on test anxiety, in part as a convenient way of studying some of the properties of anxiety in general. Central to our research, therefore, was the development of appropriate measures of anxiety. In this chapter we present the measures we developed, the rationale for them, and a discussion of some thorny problems involved in their use.

THE USE OF THE THERAPEUTIC SITUATION

The hypotheses formulated in Chapter 2 were developed within the framework of psychoanalytic theorizing. It would certainly have the virtue of consistency if the study of these hypotheses was based on a technique which rather directly derives from such a theory, i.e., psychoanalytic therapy of children and adults. Not only do the technical aspects of psychoanalytic therapy derive from psychoanalytic theory (historically the influence has been of a reciprocal nature), but the kinds and the scope of data obtained in the situation lend themselves to a more or less direct test of psychoanalytically based hypotheses. For example, our hypotheses concerning the self attitudes of the test anxious child, as well as those concerning his relationships with his parents, could be tested by the wealth of relevant data produced in the therapeutic situation. In addition the unconscious significances of test anxiety which we hypothesized could be evaluated

over the course of the therapy. We are not maintaining that there are no difficult problems of methodology and design in using the therapeutic situation as a source of data and basis for evaluation. We are maintaining that the analytic situation produces a wealth of data which are obviously of significance for the kinds of hypotheses we have presented. It might be mentioned here that although the significance of the phenomenon of test anxiety has been infrequently discussed in the literature, the few times it has been discussed have been, for the most part, in terms of data from psychoanalytic therapy.

Despite the fruitfulness of the therapeutic situation in producing data relevant to our hypotheses, there were a number of considerations which made its utilization by us impractical and even inappropriate. One of the ultimate and practical goals of our research was the development of measures of anxiety which could be used on a group basis, for example in the classroom. Such a measure would have to be simple in format, require relatively little time to administer, and be easy to score. Behind such a goal was the conviction that what was very much needed for a preventive mental health program were measures of anxiety which would validly indicate in the early school years those children who already were experiencing or at a later time would experience the predominantly disabling effects of anxiety. It seemed obvious to us that the use of psychoanalytic therapy either in its diagnostic or therapeutic aspects simply did not lend itself to the fulfillment of such a practical goal. However one studied anxiety in the therapeutic situation, one would still be faced with the laborious and important task of developing valid screening devices which could be used on a group basis.

By the very nature of therapy and clinic practice one can work only with children who are recognized as having a problem requiring help. From the standpoint of a preventive approach to mental health problems, there need to be developed means for spotting problems before they become severe and incapacitating, i.e., recognizing them at a time when relatively little effort (in comparison to the time required in therapy) can have beneficial results. Focusing therapeutically on children who already have severe problems would not seem to be a practical approach to the problem of prevention. Such a focus would also tend to have the effect (although it need not have such an effect) of overlooking the problem of how to utilize therapeutic principles in the classroom where anxiety and its consequences are so frequently experienced.

Although the data which could be obtained in psychoanalytic therapy would be highly relevant to our hypotheses, the number of chil-

dren who could be studied in this way would be far too small to allow for breakdowns according to age or grade, intelligence, sex, etc. In other words, one would not be in a position to make generalizations about important variables which might affect the occurrence and consequences of anxiety.

There is no doubt in our minds that the utilization of therapy as a research procedure can be extremely valuable not only as a source of data but as a means of clarifying and changing theoretical formulations. What we have attempted to communicate above is that for the goals of this project it would have been inappropriate to focus on the therapeutic situation as a means of testing our hypotheses.

THE TEST ANXIETY SCALE FOR CHILDREN

In the previous section we indicated why in the light of our ultimate objectives concerning the measurement of anxiety we did not employ the therapeutic situation as a way of testing our hypotheses. In the remaining sections of this chapter we describe the measures of anxiety we did employ and our rationale for their format and use. It may be of aid to the reader if we present first one of our measures followed by a discussion of its rationale.

The Test Anxiety Scale for Children (TASC) consists of 30 questions which are read to the class with the following instructions:

I'm going to be asking you some questions—questions different from the usual school questions for these are about how you feel and so have no right or wrong answers. First I'll hand out the answer sheets and then I'll tell you more about the questions.

Write your name at the top of the first page, *both your first and your last names*. Also write a B if you're a boy or a G if you're a girl.

As I said before, I am going to ask you some questions. No one but myself will see your answers to these questions, not your teacher or your principal or your parents. These questions are different from other questions that you are asked in school. These questions are different because there are no right or wrong answers. You are to listen to each question and then put a circle around either "yes" or "no." These questions are about how you think and feel and, therefore, they have no right or wrong answers. People around "yes" and you may put a circle around "no." For example, if I asked you this question "Do you like to play ball?" some of you would put a circle around "yes" and some of you would put it around "no." Your answer depends on how *you* think and feel. These questions are about how you think and feel about school, and about a lot of other things. Remember, listen carefully to each question and answer it "yes" or "no" by deciding how you think and feel. If you don't understand a question, ask me about it.

Now let's start by everybody putting their finger on Number 1. Here is the first question Number 1 "Do you worry when the teacher says that she is going to ask you questions to find out how much you know?"

(This procedure of introducing the questions is repeated for several of them and the examiner continues throughout to say the number of the question before reading it.)

When the teacher administers the scale the instructions are the same except that the teacher makes explicit that she will not see the answer sheets, someone (who should be specified) not directly connected with the particular school will receive the answer sheets in order to determine how children think and feel about the questions which will be asked. *The questions are always read to the class and the children are never required to read them.* They are asked to encircle either a yes or a no. In grades 1 and 2 the words "yes" and "no" are printed on the board and before each question is read the children are asked to put their finger by the appropriate number on the answer sheet.* A child's score on the scale was the number of times he encircled "yes" on his answer sheet. We give below the TASC

- 1 Do you worry when the teacher says that she is going to ask you questions to find out how much you know?
- 2 Do you worry about being promoted, that is, passing from the _____ to the _____ grade at the end of the year?
- 3 When the teacher asks you to get up in front of the class and read aloud, are you afraid that you are going to make some bad mistakes?
- 4 When the teacher says that she is going to call upon some boys and girls in the class to do arithmetic problems, do you hope that she will call upon someone else and not on you?
- 5 Do you sometimes dream at night that you are in school and can not answer the teacher's questions?
- 6 When the teacher says that she is going to find out how much you have learned, does your heart begin to beat faster?
- 7 When the teacher is teaching you about arithmetic, do you feel that other children in the class understand her better than you?
- 8 When you are in bed at night, do you sometimes worry about how you are going to do in class the next day?

* We have not encountered difficulty in administering the scale to children in grades 1 and 2. The fact that we have always administered the scales in the spring when the children are near the end of the school year and have made strides in the comprehension of language and recognition of numbers probably contributed to the ease of administration.

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- 9 When the teacher asks you to write on the blackboard in front of the class, does the hand you write with sometimes shake a little?
- 10 When the teacher is teaching you about reading, do you feel that other children in the class understand her better than you?
- 11 Do you think you worry more about school than other children?
- 12 When you are at home and you are thinking about your arithmetic lesson for the next day, do you become afraid that you will get the answers wrong when the teacher calls upon you?
- 13 If you are sick and miss school, do you worry that you will do more poorly in your schoolwork than other children when you return to school?
- 14 Do you sometimes dream at night that other boys and girls in your class can do things you cannot do?
- 15 When you are home and you are thinking about your reading lesson for the next day, do you worry that you will do poorly on the lesson?
- 16 When the teacher says that she is going to find out how much you have learned, do you get a funny feeling in your stomach?
- 17 If you did very poorly when the teacher called on you, would you probably feel like crying even though you would try not to cry?
- 18 Do you sometimes dream at night that the teacher is angry because you do not know your lessons?

The examiner then makes the following statement before continuing

In the following questions the word "test" is used. What I mean by "test" is any time the teacher asks you to do something to find out how much you know or how much you have learned. It could be by your writing on paper, or by your speaking aloud, or by your writing on the blackboard. Do you understand what I mean by "test"—it is any time the teacher asks you to do something to find out how much you know.

- 19 Are you afraid of school tests?
- 20 Do you worry a lot *before* you take a test?
- 21 Do you worry a lot *while* you are taking a test?
- 22 *After* you have taken a test do you worry about how well you did on the test?
- 23 Do you sometimes dream at night that you did poorly on a test you had in school that day?
- 24 When you are taking a test, does the hand you write with shake a little?

- 25 When the teacher says that she is going to give the class a test, do you become afraid that you will do poorly?
- 26 When you are taking a hard test, do you forget some things you knew very well before you started taking the test?
27. Do you wish a lot of times that you didn't worry so much about tests?
- 28 When the teacher says that she is going to give the class a test, do you get a nervous or funny feeling?
- 29 While you are taking a test do you usually think you are doing poorly?
- 30 While you are on your way to school, do you sometimes worry that the teacher may give the class a test?

THE APPROPRIATENESS OF THE SCALE

A number of considerations determined our use of a paper and pencil questionnaire and the content of the questions asked. The most important consideration in using this type of instrument was that from our theoretical point of view anxiety was a *conscious* experience which, therefore, could be communicated to another person. In Chapter 2 (p. 11) we indicated that, in accord with Freud's presentation, anxiety could be described as an unpleasant or painful reaction with bodily concomitants of which the individual is aware. The individual may be unaware of the unconscious significances of the anxious reaction and may even be unable to relate the reaction to external factors. The important point is that he is aware of what to him is an unpleasant or painful state which is tinged with more or less vague anticipations of danger. Conceiving of anxiety as a *conscious* experience, it seemed to us appropriate to attempt to determine its occurrence by what is essentially direct questioning. As we shall see in the next chapter, this type of measure is beset with difficulties which currently limit its utility but if overcome would represent a real contribution to the development of valid screening measures. It perhaps deserves emphasis that our choice of format was a reflection of our conception that the behavior we were trying to investigate was of a kind which an individual could communicate to someone else. That the procedure of direct questioning also allowed us to meet the requirements of group administration and ease of scoring provided further support for proceeding as we did.

In choosing items for the TASC we were guided by the following criteria

1 A "yes" answer to a question should, on the face of it, be an admission of behavior which is experienced as unpleasant. Put in another way, a "yes" answer should not indicate behavior which a child would regard as desirable or reflecting a happy state of affairs

2 A question should contain the element of anticipation of dangerous or painful consequences

3 There should be questions involving bodily reactions in test and testing situations

4 There should be a sampling of reactions to a variety of test like situations

In choosing items and in developing the TASC we did not assume that any of the items was a clear and indisputable measure of the anxious reaction. For one thing, not all the characteristics of the anxious reaction could be included in any one question. More important, however, is the fact that the strength of the behavior described in a question could not be gauged, primarily because to have attempted to do so would have required procedures too difficult for young children to follow. For example, if the child says "yes" to the question about worrying when the teacher is going to find out how much he knows, we cannot be sure from the answer how frequently this reaction occurs or the strength of it when it does occur. In utilizing the TASC we did assume that a high score reflected anxiety like reactions in a variety of test like situations so that it was likely that the label "test anxious" was appropriate for such a child. Similarly, we assumed that a low score on the TASC suggested that the child was not characteristically anxious in test and test like situations. However, and for reasons to be discussed later, we have always assumed that less credence could be put in a low than a high score, i.e., there is less error in the self report of someone who is admitting to "weakness" than in the self report of someone who admits to little or none of it.

In the initial steps of this project we were quite aware that there were methodological dangers in using a format in which a "yes" answer always implied anxiety. In addition, on the answer sheets the "yeses" were in one column and the "no's" in another. There were several reasons for this choice of format. First, our own clinical experiences with children in the earliest grades strongly indicated that the most simple of formats would probably create the least confusion in the minds of children of this age. Second, our own judgment was strongly confirmed in many preliminary discussions with teachers and school administrators. Third, although we could have used a different format with later grades (e.g., grades 4, 5, and 6) which was less

conducive to the engendering of a position set, we wished to have a single scale which would allow for longitudinal and cross sectional evaluations uncomplicated, at least, by the use of two different kinds of scales

While the above reasons were considered justification for our choice of format, they in no way lessened the possibility that this format would produce or facilitate position sets or attitudes of acquiescence which would mask significant relationships between anxiety and other variables. Acutely aware of this possibility, we proceeded initially in such a way as to determine whether or not we would obtain the predicted relationships, more specifically, whether we would obtain relationships similar to those obtained with the college test anxiety scale which was constructed so as to reduce the possibility of engendering a position set or attitudes of acquiescence. If similar relationships were obtained, it would suggest that we had a usable scale which was worth improving. We might anticipate later chapters of this book by saying that the scale enabled us to confirm a number of predictions so that we were able to think in a more focused and concrete way about the format we had chosen to use.

One of the questions which concerned us at the beginning of our research was the advisability of administering the scale to children in grades 1 and 2 because of their infrequent experience with the formal testing situation. Some school personnel felt so strongly that the questions would not be very meaningful to these children that initially we only went as far down as grade 2. To our surprise, however, we very frequently had the experience with grade 2 (practically always with the higher grades) that when we walked into the room carrying a bundle of answer sheets we could count on at least one child saying, "We are going to get a test!" In addition, despite the fact that the initial form of the test did not contain any explanation of what we meant by the word "test" these children seemed to understand the questions and never queried us. When our early results indicated that the direction of our findings was similar to what was obtained with later grades we then utilized the scale with children in grade 1 with similar results.

The TASC which we presented above is the version used in the bulk of the studies to be discussed in this book. Originally the scale consisted of 42 items and did not contain any explanation of what was meant by the word "test." There were three reasons for shortening the scale. First, there were items in the initial and longer versions which correlated little with total score. Second there were no differences between the older and newer forms in the direction and de

gree of correlation with various criteria Third, because of our need to develop a general anxiety scale (to be discussed in the next section) which could be administered in the same setting as the TASC, it was necessary to eliminate items

THE GENERAL ANXIETY SCALE FOR CHILDREN

One of the hypotheses to which we addressed ourselves early in our research concerned the relationship between anxiety in test like situations and anxiety in other types of situations (see p 18) To study this hypothesis the General Anxiety Scale for Children (GASC) was constructed so that it was the same in format and administration as the TASC

- 1 When you are away from home, do you worry about what might be happening at home?
- 2 Do you sometimes worry about whether
(other children are better looking than you are?)
(your body is growing the way it should?)
- 3 Are you afraid of mice or rats?
- L* 4 Do you ever worry about knowing your lessons?
- 5 If you were to climb a ladder, would you worry about falling off it?
- 6 Do you worry about whether your mother is going to get sick?
- 7 Do you get scared when you have to walk home alone at night?
- L 8 Do you ever worry about what other people think of you?
- 9 Do you get a funny feeling when you see blood?
- 10 When your father is away from home do you worry about whether he is going to come back?
- 11 Are you frightened by lightning and thunderstorms?
- L 12 Do you ever worry that you won't be able to do something you want to do?
- 13 When you go to the dentist, do you worry that he may hurt you?
- 14 Are you afraid of things like snakes?
- 15 When you are in bed at night trying to go to sleep do you often find that you are worrying about something?
- L 16 When you were younger, were you ever scared of anything?
- 17 Are you sometimes frightened when looking down from a high place?

* The L items make up a lie scale which will be discussed in the next chapter

18. Do you get worried when you have to go to the doctor's office?
19. Do some of the stories on radio or television scare you?
- L 20. Have you ever been afraid of getting hurt?
21. When you are home alone and someone knocks on the door, do you get a worried feeling?
22. Do you get a scary feeling when you see a dead animal?
23. Do you think you worry more than other boys and girls?
24. Do you worry that you might get hurt in some accident?
- L 25. Has anyone ever been able to scare you?
26. Are you afraid of things like guns?
27. Without knowing why, do you sometimes get a funny feeling in your stomach?
28. Are you afraid of being bitten or hurt by a dog?
- L 29. Do you ever worry about something bad happening to someone you know?
30. Do you worry when you are home alone at night?
31. Are you afraid of being too near fireworks because of their exploding?
32. Do you worry that you are going to get sick?
- L 33. Are you ever unhappy?
34. When your mother is away from home, do you worry about whether she is going to come back?
35. Are you afraid to dive into the water because you might get hurt?
36. Do you get a funny feeling when you touch something that has a real sharp edge?
- L 37. Do you ever worry about what is going to happen?
38. Do you get scared when you have to go into a dark room?
39. Do you dislike getting in fights because you worry about getting hurt in them?
40. Do you worry about whether your father is going to get sick?
- L 41. Have you ever had a scary dream?
42. Are you afraid of spiders?
43. Do you sometimes get the feeling that something bad is going to happen to you?
44. When you are alone in a room and you hear a strange noise, do you get a frightened feeling?
- L 45. Do you ever worry?

The TASC and GASC are administered in one sitting and interspersed between them is the instruction to draw a man, a woman, and a child of the same sex as the subject. There were two reasons

for the use of drawings (a) we wanted to reduce the possible effects of fatigue and boredom, and (b) we wanted a simple and quick measure of body image

As in the case of the TASC, the above version of the GASC is one that was shortened from a much longer scale. In point of fact, the original pool of 80 items was too long for one scale and in preliminary studies there were two scales each containing the same lie items at the same points in the scale and also reflecting the attempt to have an item of a particular content come at the same point in one scale as an item of similar content was in the other scale. In choosing items for the shortened version presented above, much the same criteria were employed as in the shortening of TASC.

On the basis of the findings presented in Appendix A it is advised that the scales be given in the GASC-TASC order. Appendix B contains in one place the explicit directions for administration of the two scales and the interspersed drawing task.

PROBLEMS IN TEACHER ADMINISTRATION OF THE SCALES

In the early years of this research the scales were always administered by a member of the project. The major reason for this was the assumption that we were asking children for a kind of personal reaction which they might have difficulty revealing to a teacher, as indeed they might have to their own parents. We were forced to reconsider this assumption when several teachers asked this question: "What makes you think that the children will be more revealing to you, a stranger, than to his teacher whom he knows fairly well?" We had to admit that we had no good way of answering the question and that it was possible that children would be essentially more honest with someone whom, far more often than not, they loved and trusted. If teacher administration was feasible, it would obviously save time not only for the researcher, but also for the school psychologist, if the scales could be developed to the point where they had practical significance for use in schools.

These studies, which are described and discussed in Appendix A, indicated that there is no basis for concluding that teacher administration has any clear advantage over administration by a stranger.* At this point we wish only to emphasize some of the difficulties involved in teacher administration. On several occasions when the scales

* The reasons for putting these studies in an appendix rather than in the main text have been discussed in Chapter I.

were being administered by a member of this project, the atmosphere in the class was of such a kind as to raise a question about the representativeness of the responses of the children. When this occurred in the course of attempts to survey an entire grade or school, the data from what we considered atypical classrooms were included in all analyses. On two occasions, however, when the scales were being administered in order to select certain types of subjects for a particular study, we excluded the two classrooms without even looking at the answer sheets. If this had happened (and it does) in a teacher administration, and if the children's responses were indeed unrepresentative, it is possible that the researcher might not know of the problem. If he obtained negative findings, he simply would not know about an important factor which might have contributed to them. During the period when we were evaluating teacher administration we made an effort to have post administration, informal discussions with the teachers. Although it happened infrequently, we found several instances where the teacher had volunteered explanations to the children, or had answered queries in certain ways, which raised questions in our mind concerning attitudes which may have been engendered in the children.

We can briefly state our opinion about teacher administration in this way: "What you do not know can hurt you," particularly where for purposes of a research study involving relatively few children certain kinds of subjects are required. We are not suggesting that teacher administration is inadvisable. Undoubtedly, comprehensive and detailed instructions can reduce some of the problems associated with teacher administration of the scales. We raise the problem at this point in order to emphasize that even with apparently simple questionnaires one cannot assume that *who* conducts the administration is an unimportant problem.

In this chapter we primarily attempted to indicate the reasons for employing self-report techniques in studying anxiety. In proceeding in this manner we were quite aware of the problems involved in depending on such techniques. In the next chapter we shall direct our attention to these problems.

The lie scale

CHAPTER 5

In the previous chapter we made reference to the lie scale, which consists of a series of items embedded in the GASC. We did not discuss this scale in detail at that point because the lie scale is concerned with a problem which in and of itself is broad enough to warrant separate consideration. This problem is the effect of test taking attitudes on the anxiety scales. The term "test taking attitude" refers to all those tendencies on the part of a person answering a questionnaire, such as the TASC, to provide information about himself which is essentially false and when taken at face value is misleading to the tester. This concept includes those tendencies used by the so-called malingerer, who attempts to make himself look more anxious, or worse off, than he really is. It includes the opposite tendency, often termed "defensiveness," whereby someone tries to make himself look "better" than he really is by denying some of his less desirable attributes. Test-taking attitudes also include what some researchers have called response sets—tendencies to answer a questionnaire in a given way, such as answering all questions "yes" or alternating "yes" and "no" answers regardless of the content of the individual items.

One aspect of this problem should be made quite clear before we proceed any further with the discussion. The term "test taking attitude" refers both to conscious and unconscious attempts by the person taking the test to misrepresent himself. It is recognized that there are some people who knowingly avoid the truth in answering a questionnaire, or knowingly answer in a set pattern which will invalidate the test. We might ask one of these people if he is afraid of mice or rats, whereupon he would say to himself "Yes, but I ought not to be, so I'll say

'no'." Another person might actually believe that he was not afraid of mice or rats even though if he were to come face to face with one he would panic and run away. He would answer "no" to that question and not feel that he was being untruthful in the least, and yet his behavior would indicate such a fear. It would be wrong to say that this person was "lying" when he answered that item, since he told the truth as he saw it. The kind of behavior that this person displays in answering "no" is sometimes called "unconscious defensiveness" and has as great, if not greater, effect on the invalidation of questionnaires than the more easily understood conscious lying. In a similar way, response sets can be thought of as being both consciously and unconsciously directed. The test taker can deliberately set out to invalidate the test by answering the items in a set pattern or he can follow such a pattern without being aware of what he is doing.

Test taking attitudes are actually the expression of a much more general phenomenon of human behavior, which, for want of a better term, might be called distortion of communication. Anyone who has conducted a psychiatric interview, worked as a psychotherapist, or even interviewed people applying for a job has faced such distortion. The fallibility of eyewitnesses is well known to lawyers and police officials. Parents continually experience the frustration of having to piece together the accounts of children in order to obtain a reasonable description of some incident. In the development of psychoanalytic techniques, Freud became increasingly aware that all of the patient's methods producing distortion of communication were purposeful in that they served some psychic function for the patient. Knowledge of such methods was as important in the understanding of a patient as the undistorted material produced by the patient. For the purposes of the present discussion the important point is that distortion seems to be used by everyone.

Researchers who have constructed and used personality questionnaires have demonstrated cognizance of the problem of test taking attitudes in varying degrees. In the first section of this chapter we briefly view some of the more important aspects of and trends in the recognition of test taking attitudes and the methods utilized to combat them. This view serves as a historical introduction to the development of our own lie scale and the nature of our thinking at the time of its origin. Following this, we present and discuss the preliminary research which we have conducted in an effort to test the validity of the lie scale. This preliminary research has primarily served to suggest the course of future research on test taking attitudes and their effects on the test anxiety scale. The next section focuses on the question of re-

sponse set, particularly the acquiescence variable. Finally, future studies are considered as well as their theoretical implications.

HISTORICAL OVERVIEW OF COMMENTS AND RESEARCH ON TEST-TAKING ATTITUDES

Historically, the problem of test taking attitudes can be treated in terms of three periods. First, there was the long period following World War I and extending through the 1930's during which many people recognized that testees often gave misleading information in answering questionnaires. Although the problem was recognized, not much was actually done about it other than paying lip service to the problem. It should be mentioned that the avoidance of the problem by researchers did not end with the year 1940, but continues in much of the research of today.

The next phase started in the 1930's and was characterized by attempts to get at the problem in a logical, *a priori* fashion. Assumptions were made about testees in general, and on the basis of these assumptions relatively weak and ineffective attempts were made to take account of test taking attitudes in test results. The research during this period was quite fragmentary and essentially nonempirical. Nevertheless it was a beginning, and, if nothing else, tended to demonstrate the importance of the problem.

The third phase began with the advent of the Minnesota Multiphasic Personality Inventory (MMPI), a long and complex personality questionnaire. As it was originally constructed, this scale was not administered in group form, but it was soon adapted for this purpose, and most of the research on the scale has utilized group administration. This third phase is concerned with the three scales within the MMPI which were designed to get at test taking attitudes, the F, L, and K scales, and research with the MMPI which was devoted to the development of new methods or scales to measure the effects of test taking attitudes. In viewing the problem historically we have, for purposes of convenience, divided the rest of this section into the pre MMPI and MMPI periods.

Pre MMPI Period Criticism of the questionnaire technique on the grounds that subjects can easily distort their responses began soon after the introduction in 1918 of the Woodworth Personal Data Sheet (Woodworth, 1918). Laird (1925) mentioned the possibility that test taking attitudes have an invalidating effect. In 1928 Allport made the first of several criticisms of questionnaires on these grounds. During

the next decade there were many articles which mentioned the problem, and in most reviews of questionnaires and their validities which have appeared since 1940 these same difficulties have been brought up. For example, Ellis (1946) stated that at least some of the positive results of validity studies on certain tests were due to the fact that the "groups of subjects employed for validating purposes were often unusually test sophisticated or biased ones, and could be expected to answer more honestly than normal subjects."

During this early period psychological researchers used a variety of techniques to demonstrate the susceptibility of questionnaires to distortion. Steinmetz (1932), using the Strong Vocational Interest Blank, found that students were able to distort their scores and to succeed in qualifying for an occupation, chosen at random so far as they were concerned, despite low initial predilection. He also found that students were able to "improve" their scores markedly when they tried to do so. Kelly, Miles, and Terman (1936) found that both male and female subjects were able to shift their scores enormously in either the masculine or feminine direction on the Stanford Masculinity-Femininity Test. Olson (1936) found that subjects reported more symptoms when they did not have to sign the Woodworth Mathews Personal Data Sheet than when they did. However, Spencer (1939) decided on the basis of his research that the waiver of signature technique did not wholly eliminate the effects of test-taking attitudes.

Despite the criticism leveled at questionnaires, there were attempts in these early years to overcome the limitations imposed on the self-report technique by test-taking attitudes. If one looked at but one side of the issue, the side presented by the critics, it would be easy to gain the impression that those who constructed such tests were not cognizant of their limitations. This was not the case for some of these pioneers in personality inventories. Bernreuter (1933a, 1933b) constructed a test which during this period became one of the most widely used of all the inventories. That he recognized the problem, and was concerned by it, is indicated in the following statement made in 1933 when he was reporting the construction of his scale:

Assuming that close rapport is had with the subject and that the subject has the knowledge and ability to make accurate reports concerning himself it probably may be safely assumed that the answers given are indicative of his true behavior and subjective experiences. All scores should be interpreted with due regard for the possibility that either or both of these assumptions may not be sound in the case of a given subject. The observations of psychiatrists concerning the mechanisms of compensation, rationalization and projection would indicate that many subjects, particularly those who are borderline cases, are unable to report adequately upon the motives which

lie behind their behavior, and even, under certain circumstances, are unable to report adequately upon their behaviors and experiences (Bernreuter, 1933a, p. 398)

Humm and Wadsworth (1935), in describing their temperament scale, fully indicated that they recognized the problem. Furthermore, they made some provisions for identifying those results which probably had been invalidated by test taking attitudes. They cited three indicators of possible invalidation: "a tendency toward biased 'yes' or 'no' answers," the extent of "component deviations in the profile," and "too many skipped questions." They were aware that under some conditions, such as in private casework, certain transference phenomena may bring about tendencies to admit to every possible symptom. They also pointed out that other situations occur where "the subject has been placed on the defensive." They were of the opinion that as many as 30 per cent of normal subjects may invalidate their tests in this manner and that "some subjects seem to be unable to overcome such a tendency." They set up cutoff scores regarding the number of "no" answers to be allowed on a given test before the results would be termed questionable. Another article (Humm and Humm 1944), appearing nine years later, again shows the interest of these authors in attempting to deal with the problem of distortion. As will be shown, they set up specific procedures designed to quantitatively identify the effects of defensiveness and plus-getting.

Rosenzweig (1934) made a suggestion which set the course for much of the research on the problem which followed. He saw no effective way of increasing the "honesty" of subjects. Rather, he proposed that we accept these tendencies of testees to distort their responses to questionnaire items and attempt to measure the amount of distortion, so that corrections could be applied to the scores attained by these people on the questionnaires. Earlier, Maller (1932) had attempted to do just that by including in his questionnaire a few items which were designed to estimate the testee's "readiness to confide." These items turned out to have little value, however, probably because they themselves were subject to the same distortion which they were supposed to measure.

Meehl and Hathaway (1946) have stated that if Rosenzweig's idea was extended to its logical conclusion, tests should deliberately give subjects opportunities to distort their answers so that we might observe such distortion behavior by looking at the test results. They have proposed three methods by which this can be done. First, they suggest investigation of internal contradictions. That is to say, one looks at a subject's test protocol and determines whether the subject said one

thing about himself on one item and the opposite on another. Second the tester might present opportunities for answering in a very favorable way but in a way which could almost not be true. The third technique they mention is the use of subjects responding to tests under instructions designed to vary the test taking attitudes operating at a given time. The usual procedure here is to test subjects under normal conditions then have them take the test again but this time the tester instructs them to "fake good" or "fake bad." From the study of those items which shift under different instructions a "fake" scale can be derived which includes items already in the test.

These two authors have presented an excellent review of the research which utilized each of these methods up to 1946. The first technique of investigating internal contradictions has been used very little with no apparent success. The second technique has gained more popularity and is at present utilized to a great extent in test construction. The classic Hartshorne and May studies on honesty employed this method (Hartshorne, May and Shuttlesworth 1930). The idea is simply to present the subject with a number of items within a personality questionnaire which represent traits or behaviors which are both highly desirable and rarely performed. An item of this type might be "I read all the editorials in the newspaper every day." A few honest people might be able to answer "true" to this item but even these few would have difficulty remaining honest and answering "true" to every one of a variety of such items. Thus a testee is allowed to state that some of the items are characteristic of him but should he present himself as embodying most or all of these attributes the tester is justified in classifying him as "defensive," "dishonest" or "uncooperative." In this case the subject's score on the personality items of the questionnaire is considered highly suspect.

The third technique (varying instructions) raises some interesting questions about its validity. This method was used by Ruch (1942) in constructing an honesty scale for the Bernreuter scale. He tested subjects under two conditions. The first or "naïve" condition involved the usual test instructions. On the second examination subjects were instructed to fake their answers to the best of their ability. To determine the extent to which an item could be faked he tabulated "the frequency of each answer to each question for the standard condition and for the influenced condition. These frequencies were converted into percentages and an honesty weight was assigned to each reply according to the magnitude of the critical ratio of the difference between the frequency of the reply in the honest and in the influenced condition." The honesty scale thus derived was applied to another

group of subjects and it was shown that all so called real introverts would be detected when they tried to make themselves appear as extroverts on the test

Meehl and Hathaway (1946) credit Ruch with being the first researcher to attempt such an empirically derived fake key for personality inventories. The present writers wonder just how empirical this type of procedure is and, of more importance, are concerned with the value of a scale derived in this fashion. Consider the "naive" situation. There is every likelihood that subjects are doing considerable distorting when taking the test under the usual instructions. Indeed that is why investigators are trying to measure test taking attitudes. With distortion occurring under "naive" conditions, is it possible to use the difference between these scores and scores obtained under "fake" instructions as a measure of an item's susceptibility to distortion? What the technique calls for, obviously, is a first test which would give results free from all faking. But if this could be done there would be no need for research of this sort. Another objection to the procedure is the assumption implicit in the method which equates distortion as a result of instructions with distortion for personal reasons. Meehl and Hathaway have stated this another way, questioning "the extent to which the key would work if the subjects were not under actual instructions to fake extrovert but were being more subtle and trying to deceive the examiner in a real life situation." Exposition of the difficulties inherent in the method employed by Ruch is important not only for historical reasons but also because of later attempts to investigate more recent scales with this technique.

MMPI Period There has probably been more research interest in the MMPI than in any other instrument of the questionnaire type. Much of this research has centered on the role of test taking attitudes in determining the response to the test. Undoubtedly, one of the reasons for this interest is that the original MMPI included scales to measure test taking attitudes, these scales were the lie (L), the validity (F), and the "don't know" (?) scales. Later, an additional scale, K, was added which was derived in empirical fashion and which was intended to serve as a correction factor for the scores ordinarily obtained on the diagnostic scales of the MMPI. It is often thought of as a measure of so-called unconscious defensiveness, or, in the opposite direction, plus getting

Before beginning a discussion of these scales it might be helpful if we describe the manner in which the MMPI was constructed. Briefly, what was done was first to obtain a list of over 1000 items from older scales, psychiatric textbooks, from directions for psychiatric examina

tions, and directions for taking case histories in neurology and medicine. Duplicate items were dropped and other items discarded because they seemed to have had little significance for the test, leaving a total of 504 items. These were phrased as declarative statements, the majority being stated positively. Each item was printed on a separate card and subjects were asked to put the cards in one pile if the item "is mostly true about you," in another pile if "it is not mostly true about you," and in a third pile "if a statement does not apply to you." This last pile is the "cannot say" or (?) group. The test was administered (individually) to a number of subjects, including many hospitalized for psychiatric reasons. In deriving the diagnostic scales, the general procedure was to find those items which differentiated people suffering from a particular malady (e.g., hypochondriasis) from those with other psychiatric conditions. The important thing to note here is that an item was not considered for a given scale on an *a priori* or content basis; the selection was ruthlessly empirical. Meehl (1946) has provided an excellent discussion of this method, pointing out its logic and degree of success. Later, the inventory was adapted for group administration, the items being printed in one large booklet and IBM type answer sheets used.

The first of the validating scales which we shall consider is the "cannot say" or (?) scale. Scores on this scale are determined by the number of times the subject indicates that a given item does not apply to him. If the number of items falling into this category is too high, the test results are considered invalid. This scale has aroused very little research interest, primarily because few subjects invalidate their scores in this manner. Tamkin and Scherer (1957) found that in a patient population of 126 males, only 12 patients responded in the "cannot say" manner on over 23 of the more than 500 items. Furthermore, the rest of the patients had (?) scores at or near zero. These researchers further found that there was no systematic relationship between the (?) scale and other measures of the MMPI, including the other validating scales.

The lie (L) scale of the MMPI is made up of 15 items of the Hartshorne and May type. The selection of these particular items was not empirical; they were presented on face validity. In the booklet form of the test every fifteenth item is a member of the L scale. The scale is unidirectional in scoring, i.e., all "false" responses to these items contribute to a high L score.

It was the opinion of the authors of the MMPI that the L score was a valid indicator of individuals who were dishonest in making their responses, and who were relatively naïve about it. They believed that a low L score was not necessarily indicative of "honest" responses, since

it was also thought that sophisticated subjects could falsify their responses without causing a significant rise in the L score

In checking this assumption that L would not detect the more sophisticated subject, psychology students were used in an experiment. Fifty three men were given the MMPI twice "Faked good" data were obtained by instructing the students to make certain in taking the test that they would be acceptable for induction into the army. Records obtained under these instructions showed no appreciable increase in L. However, most of the scores on the personality scales of the MMPI were only slightly, if any, better than the corresponding non fake scores. The authors of the study pointed out that this study could have been improved if subjects whose true personality scores were abnormal had been used.

Like the L scale, the items of the F, or "validating" scale of the MMPI were presented on face validity. There are 64 items in this scale, chosen because they were answered in the indicated direction with a relatively low frequency by the main normal group of subjects utilized in the construction of the test. These items were also chosen because they represented a variety of content, i.e., they would not tend to be associated with any particular disorder. Examples of F scale items are "Everything tastes the same" (true), "I believe in law enforcement" (false), and "I have a cough most of the time" (true). Answers in the indicated direction score on the scale. Few of the items are intercorrelated to any extent and according to the MMPI Manual they suggest whether or not the subject has given responses that are avoided by most persons. High scores were thought to indicate that the test responses were invalid, due to clerical errors by the scorer, or to poor comprehension or carelessness by the testee. However, the Manual did state that it was possible for valid tests to be obtained, despite high F scores, from "highly individual and independent subjects" and some "badly neurotic or psychotic subjects."

There has been some research on this scale which indicates that the F scale has greater diagnostic value than was originally thought. Kazan and Sheinberg (1945) studied the MMPI protocols of maladjusted army personnel. These subjects' personal difficulties ranged from situational problems to prepsychotic personalities. The MMPI was administered to 170 of these people and 37 of the tests had F scores of 70 or above. To obtain such a score, at least 12 of the 64 items must be answered in the scored direction. Thirty five of these "high F" protocols gave a "clearly valid picture of the personality of the patient who took the test." None of these had fewer than four pathological peaks on the diagnostic scales, and only two had high L scores. Of the

remaining 133 patients, only 35 had four pathological peaks, i.e., one-half of all the patients having at least four such peaks had high, or in terms of the original description of the scale, "invalidating" F scores. The authors concluded that their results "indicate that the high F score has a definite psychopathological connotation, probably reflecting significant personality disorders manifested in scattered psychological areas. Such an F score would definitely not be construed as an invalidating score, but rather as an ominous warning of diffuse and deep seated psychiatric disease."

Schneck (1948) and Buechley and Ball (1952) have carried out studies which obtained results similar to those of Kazan and Shemberg. On the basis of these studies several statements can be made about the scale. It is apparent that high scores on the F scale may indicate one, or several, things about the subject and his protocol. High scores raise the question of the validity of the protocol. Did the subject understand the items in the MMPI? Was he so resistant to the test procedure that he answered "true" and "false" arbitrarily, without reference to the content of the item? Did he understand the instructions? These questions are concerned with the validity of the scales. But it is also possible that the subject is out of contact with reality to such an extent that his responses to the items of the F scale actually reflect his feelings and his particular brand of logic.

The K scale is the result of a long series of experimental, rather than face validity, approaches to the problem of the determination of test taking attitudes in the MMPI. Strictly speaking, however, the scale was not thought to be measuring anything specific about a given person. It was derived as a correction scale for improving the discrimination yields on the already existent MMPI scales, and was not assumed to be measuring anything which in itself was of psychiatric significance. Therefore, the originators of the scale preferred to discuss the validity of K only in terms of its power as a correction scale. Nevertheless, as Meehl and Hathaway (1946) point out in the original article dealing with the K scale, "it is presumably a significant fact about a person that, in answering a personality inventory, he tends to behave as a 'liar' or a 'plus getter'."

In reporting the derivation of the K scale, Meehl and Hathaway present an excellent discussion of empirical methods for constructing test taking attitude scales. They recognize two basic experimental approaches available to researchers. The first involves instructing subjects to "fake" their answers in a given direction. The second consists of the study of protocols obtained from people who, for one reason or other, have in all likelihood assumed some attitude in making their

responses. The authors of the K scale used variations of both of these methods, deriving a number of different scales, before settling on one which used 22 of the MMPI items. While this scale was the best of the scales they had developed thus far, it still fell short of the authors' desires. Its major weakness was that it tended to score low with severe depressive or schizophrenic patient records and therefore led to an underinterpretation of the extent of pathology despite the apparent abnormality of these patients. In order to correct this weakness, a third method was employed. First, items to which normal subjects failed to respond differently when instructed to fake their responses were selected. From these, a subgroup of items was chosen which showed differences between the depressive or schizophrenic groups and the normal subjects who had been tested without faking instructions. Eight items were obtained in this way and added to the previous 22 to give the final form of the 30-item K scale. Test-retest coefficients were obtained from two groups, these coefficients being .72 and .74.

In later research the relationship between the K scale and the diagnostic scales of the MMPI was investigated, and the best method of using the K scale as a correction device decided upon. For each clinical scale a weight was assigned to the K scale, and this weight, multiplied by the K score, was added to the score on the given clinical scale. The authors pointed out that these were the weights which worked best to differentiate abnormals from normals in the sample which they used (inpatient cases), and suggested that it might be more efficient to use different weights for subjects seen in a college counseling bureau or in a clinic treating milder disorders. However, the manual and profile sheets which have since been published for the MMPI include directions for the use of these particular weights, and the tendency has been for most testers to use them regardless of the situation.

The value of the K scale as an aid to diagnosis has not been demonstrated in clear-cut fashion by research. Three studies, which have appeared since the introduction of the K scale [Gough (1947), Hunt et al. (1948), and Schmidt (1948)] indicate that the effectiveness of the K scale in distinguishing "faked" records from normal ones is minimal. These three studies, however, all incorporate one feature which is worthy of comment, the use of groups or subjects instructed to fake their protocols. The items of the K scale are of a subtle nature and may not be likely to reflect conscious distortion of this sort. The results of some of the studies indicated that the L scale was as effective as an indicator of faking as the K scale, a result in line with the use of instructions to consciously distort responses. Moreover, results of portions of this research suggested that the K scale is not truly effective

in performing the task for which it was designed—differentiating between normals or psychotics

As previously stated, Meehl and Hathaway described three methods to investigate and/or control the effects of the test taking attitudes of defensiveness and plus getting. The first of these was the checking of internal contradictions, a method which has been used very little. The second, that of presenting subjects with a number of items which describe behaviors or traits which are rare but desirable, has been used in such scales as the L scale of the MMPI. The third technique, the use of "faking" instructions in selecting items, has also been used, notably in the case of the K scale of the MMPI. Actually, the first technique does not constitute a method of deriving a scale which will measure test taking attitudes, but a direct check on them using the regular items of a given questionnaire. The second and third methods are ways that have been used to construct useful scales. One might categorize the second method as an *a priori* technique, where items are selected on the basis of what one knows about them in and of themselves. They are selected at face value, without reference to the effects upon the way in which they are answered resulting from their being thrown in with a number of other items in a questionnaire. For example, we might expect that most people would admit that they do not read the editorials in the newspaper every day if we asked them this question by itself, but if we asked them this question at the end of a long and personal interview, they might feel that it was necessary to assert that they did read them in order to bolster their own self esteem. The F scale of the MMPI also was selected in this *a priori* fashion, although it is not a lie scale in the sense of Meehl and Hathaway's second category.

The third technique outlined by Meehl and Hathaway is an empirical technique. Items are selected only after one determines how they are responded to under specified conditions. Along with the use of "faking" instructions, we can add the other method which was used in the derivation of the MMPI K scale, that of selecting a group of subjects with known characteristics, such as certain types of psychopathology, and comparing the way in which they respond to items to the way in which other groups of people (e.g., normal subjects) respond to the same items.

Two conclusions might be drawn from the thinking and research which has been done on test taking attitudes. The first conclusion is that attempts to identify and control for test taking attitudes have met with limited success. The second conclusion which might be drawn is that practically all of the research has been essentially nontheoretical.

in the sense that the test instruments and the test-taking scales have not derived from stated theories of personality. In the following section, which is devoted to the lie scale of the CASC, we attempt to indicate how our thinking and efforts with this lie scale were influenced by our theoretical orientation. We might anticipate some of the following discussion by stating here that while our own efforts have not been markedly successful we think that our theoretical approach to the problem has resulted in a restatement of the problem which may be fruitful in attacking the problem of the effects of test-taking attitudes on personality questionnaires of the self-report type.

THE LIE SCALE OF THE CASC

As was indicated in the early pages of this chapter, one cannot work within a psychoanalytic framework, particularly in the therapeutic situation, without becoming acutely aware of the myriad ways in which distortion affects verbalized self-report. In fact, the use of personality questionnaires in research and clinical work has in the past aroused a strong adverse reaction in the psychoanalytically oriented psychologist precisely because of his awareness of the dangers involved in accepting a self-report as a valid indicator of past or present behavior.* Unfortunately, this adverse reaction has had little constructive effect. On the one hand, those who have been interested in developing personality questionnaires have not been affected, largely because such workers have been either nonanalytically or aotianalytically oriented, or both. On the other hand, those making the adverse criticisms have been unwilling or unable to attack the problem themselves. One sometimes gets the impression that these critics have, by outright rejection of self-report questionnaires, confused two different issues: the underlying purpose in developing such instruments and the means employed for achieving the goal. We might best illustrate what we mean by referring to our own research. One of the practical goals of our research is the development of a questionnaire which might enable us to pick out in the early school years those children who are or will later be characterized as maladjusted. We doubt that anyone would quarrel with this purpose or objective. Nor do we doubt that any knowledgeable person in this area of work would maintain that now or in the foreseeable future there would be enough qualified personnel to see and diagnose each child individually. There is clearly a need for screening

* For example, this was primarily the basis for the adverse reactions of many psychoanalysts to the Kinsey reports.

devices in this important area—devices which are simple in format, are group administered, and are capable of being understood by children in the first grade. The fact that we have relied in our research on self-report procedures which may be subject to many errors and criticisms should not blind one to the pressing need for devices which can do the job. It is unwarranted in the extreme to throw out the problem at the same time one is throwing out the device.

It is appropriate here to consider the previous work on the identification of test-taking attitudes from a psychoanalytic point of view. The first criticism that could be made is that measures of test-taking attitudes have not reflected the different ways in which distortion can affect a self-report. For example, ten individuals can receive the same high score on a scale indicative of the tendency to present oneself in the most favorable light. It is conceivable, however, that in each case the score is a reflection of a different structure or organization of defensive reactions. In one case this score may be intimately related to a defensive structure dominated by projection, in another case by reaction formation, and yet in another case by a defensive structure characterized by a massive denial tendency. One might say that similar scores on a test-taking scale are as diagnostic or interpretable as similar degrees of elevation in body temperature in different individuals, the predictive significance of which is ambiguous unless one has some idea of other processes with which it is related or from which it derived. Put in another way, the diagnostic or behavioral significance of a score on a test-taking scale is unclear unless one can relate that score to other indices of defense. If one is content to say that a particular test-taking score invalidates a person's self-report, there is little basis for argument. However, contenting oneself with this kind of statement is, in our opinion, to fail to pursue the problem to the point where self-report instruments can become truly effective in a diagnostic sense. From a psychoanalytic point of view, research with self-report devices has stopped at that place where the complexity of personality organization becomes most apparent.

A second major criticism that might be made of previous research on test-taking scales is that their content has tended to be quite different from the content of the questionnaire itself. It is as if an implicit assumption is made that defensiveness is a kind of general factor which can be measured regardless of item content. For example, if a questionnaire deals with anxiety experiences but the lie scale deals with other kinds of content (e.g., "I am always polite"), it is not at all clear why such a lie scale should be revealing of defensiveness in admitting to anxiety. Both from a psychoanalytic and common-sense point of

view, the strength of the tendency to distort self reports about certain experiences or habits is in part a function of the content of those experiences. If one's focus is on self report about anxiety, then the lie scale should primarily involve items about anxiety. For example, the following two items are contained in the MMPI lie scale: "I would rather win than lose a game," "Once in a while I put off until tomorrow what I ought to do today." It is by no means clear why these lie items should be revealing of a defensive tendency in relation to the content of the items making up the various subscales of the MMPI.

A third major criticism which might be made from a psychoanalytic viewpoint is that not all areas of experience are similar in the degree to which they elicit defensive tendencies. For example, a self-report questionnaire focusing on sexual behavior would be expected to produce more distortions than would a questionnaire concerned with relationships with peers or parents. If the personality questionnaire covers a variety of areas of experience (as is usually the case), one would expect that the test taking subscales would take account of differences in distortion producing effects in relation to differences in areas of experience.

It seems apparent from the above discussion that the problem of measuring defensive or distortion producing tendencies via test taking scales is extremely complex—far more so than has been realized in the past. Not only are we dealing with a theoretical problem which has to be better clarified but also with the development of appropriate methodologies. In fact, our awareness of the complexity of the problem quickly brought us to the realization that all our efforts could be devoted to the problem without attacking any of the theoretical questions raised in Chapter 2. As might be expected, a compromise was made.

In initiating our project our first concern was with the development of an anxiety questionnaire which seemed to produce predicted relationships between it and other variables. At this point the Test Anxiety Scale for Children (TASC) did not contain a lie scale. Although we recognized the role of distortion in devices like the TASC, it was our opinion that such distortion would tend to lower the size of correlations we expected but would not obscure the relationships. Essentially, we were asking this question: did we have an instrument which was worth refining?

The correlational data (to be described in the next chapter) supported our predictions and encouraged the continuation of the research. A finding, however, which reinforced the need of a lie scale was that the distribution of TASC scores, unlike that of the college scale which was essentially normal, was markedly skewed. Many chil-

dren were getting low scores on the scale, causing a piling up at the lower end of the distribution

In developing our lie scale our primary concern was the detection of the tendency to lie about *anxiety* rather than any general tendency to make oneself appear to be better than one really is. Therefore, we attempted to follow the general formula of having the items refer to things that nearly everyone experiences, but we tended to restrict the type of experiences to those involving *anxiety* or other affects closely allied with it

The first lie scale contained 13 items scattered throughout the original General Anxiety Scale for Children (GASC). Eight of these items contained direct reference to anxiety feelings. They employed the words "worry," "scared," "scary," or "afraid." Three were concerned with feelings of hostility toward others, one referred to unhappiness, and one directly asked whether or not the subject always told the truth. The correlational data obtained from giving this scale indicated that the eight items concerned with anxiety along with the single item referring to unhappiness were the items most directly related to the obtaining of extremely low scores on the anxiety scales. Among other procedures, a factor analysis of boys' responses to this lie scale was carried out. This analysis indicated that seven of the eight "anxiety" lie items and the one "unhappiness" item were closely associated in terms of what they were measuring, and the items referring to hostility toward others hung together as a related but distinct factor. When both the anxiety scales and the lie scale were shortened to give the present scales, the lie scale was modified to include only those items where a child could admit to or deny feelings of anxiety or unhappiness. The seven items which were correlated in the factor analysis and the single "unhappiness" item formed the major part of the new scale. To these items we added three new items, all of which were concerned with anxiety. The 11 items are listed below along with the numbers indicating each item's position in the 45 item GASC.

- 4 Do you ever worry about knowing your lessons?
- 8 Do you ever worry about what other people think of you?
- 12 Do you ever worry that you won't be able to do something you want to do?
- 16 When you were younger, were you ever scared of anything?
- 20 Have you ever been afraid of getting hurt?
- 25 Has anyone ever been able to scare you?
- 29 Do you ever worry about something bad happening to someone you know?

- 33 Are you ever unhappy?
 37 Do you ever worry about what is going to happen?
 41 Have you ever had a scary dream?
 45 Do you ever worry?

These items seemed to fulfill the requirement that they refer to experiences which are essentially universal among children, i.e., all children, if they were able to report their experiences without distortion, would answer "yes" to most if not all of the items. It might be noted that the word "ever" appears in each item. This word, we felt, aided in reducing any qualms one might have that some children did not experience such feelings. Surely, at one time or another in their lives children suffer all of the experiences described by the items with the possible exception of the first one, number 4. We realized that this item might not apply to children in the first grade, although it has been our experience that first graders are concerned about tests and the like much more than we had anticipated before beginning our research. Whatever their universality, it is quite unlikely that a child has not had a majority of the experiences described in the lie scale.

Past Findings with the Lie Scale. One of the purposes for the inclusion of the lie scale, it is to be remembered, was to determine whether or not defensive tendencies on the part of the children we tested were responsible in some degree for the skewed distributions of anxiety scores which we obtained. We felt that this question was answered by the lie scale, since many of the children who scored low on the anxiety scales scored high on the lie scale. We of course recognized the importance of defensiveness for research which employs a questionnaire as its main instrument for the collection of data. On several occasions we attempted to set up research designs which would include a lie score as a variable, but in most cases such designs proved to be impractical. For example, in planning the large study in which we selected 32 matched pairs of children, we considered matching subjects on lie scores. However, matching of this type proved to be impossible despite the large number of subjects at our disposal, because of the nature of the anxiety and lie distributions. Thus, the research which we have carried out, and which is presented here, represents a collection of correlational and pilot studies.

The data collected from the administration of the test anxiety scale and the first forms of the general anxiety and lie scales produced some interesting results. As we had expected, defensiveness seemed to play a major role in bringing about the skewed distribution of test anxiety scores. This was indicated by the correlations between lie score and

test anxiety, which ranged between -16 and -59 . The correlations between lie score and general anxiety score were even higher, ranging from -10 to -66 . Inspection of the data revealed that many of the children who obtained relatively low scores on the anxiety scales scored high on the lie scale. We felt that if these children had been able to report their experiences with greater accuracy the distribution of anxiety scores would have been less skewed. The high negative correlations between lie and anxiety could be interpreted as indicative that the lie scale was measuring the same thing as the anxiety scales but in reverse direction. One might conceivably conclude from this that the only factor that anxiety scales are measuring is the willingness or ability to report one's experiences accurately. However, there are two factors which suggest that such a conclusion is not warranted. First, it will be recalled that the items in the lie scale are primarily concerned with anxiety and its concomitants. When a child scores high on the lie scale, all one can legitimately say about this is that he did not truthfully report those experiences which involved anxiety. One could, therefore, conclude from the correlation between lie and anxiety scores that the anxiety scores possibly reflect a willingness to report *experiences involving anxiety* as well as the actual frequency and/or quality of these experiences—a conclusion rather different from one stating that the scales measure willingness or ability to report accurately in general. The second factor which makes such a broad conclusion untenable is that most of our studies (to be discussed in subsequent chapters) have demonstrated differences between children who obtain high anxiety scores and those who get low scores, predicted differences which were related on a theoretical level to actual differences in level of anxiety. If the marked tendency for low anxiety scores to go with high lie scores was interpreted as meaning that the anxiety scores were invalid, one would be hard put to explain the consistency and frequency of our predicted findings.

The data to be presented in Table 6 and Chapter 6 shed further light on the usefulness of the lie scale. The primary purpose of the investigation was to study the relationship between TASC and IQ and between TASC and achievement test scores. In general, these correlations were found to be statistically significant, although low, and in a negative direction. In an effort to obtain a better estimate of the true relationship between anxiety and the intellectual measures, the correlations were recomputed with the data collected from only those children who scored 6 or less on the 13 point lie scale. In short, "high liars" were excluded from the new set of correlations. Out of 16 correlations between TASC and IQ, 13 increased upon recomputation,

out of 16 correlations between TASC and mean achievement score, 14 increased. While these increases were small, the fact that so many of them occurred provided some evidence that the lie scale was helpful in detecting the use of defensiveness in taking the anxiety scales.

It was during the following year, 1956, that the present form of the scales was first used. A large population of children were given the scales, and essentially the same correlations between lie and both anxiety scales obtained as we had found using the previous forms. The research which followed this administration was primarily concerned with the studies involving learning the Rorschach, and the parent interviews. We did not carry out any studies which focused on defensiveness. However, one statistical study suggested that there is a tendency for children to defend less when the person administering the scales is their own teacher, rather than some strange adult. This suggestion resulted from the collection of data in one particular school in which teachers gave the scales. In this school anxiety scores were higher than those obtained in the rest of the schools in which we worked, whereas lie scores were lower. Unfortunately, we were unable to regard these results as anything more than suggestive, since the results may have been confounded with school differences.

In 1957 we began some pilot studies which we hoped would shed some light on what course future research on the lie scale should take. Searching the literature, we found that the Children's Manifest Anxiety Scale (CMAS) was of interest to us since it contained a built in lie scale (Castaneda et al., 1956a). The lie scale of the CMAS contains 11 items selected on an *a priori* basis to measure the tendency to be generally defensive. That is to say, the items of the lie scale were similar to the items of the L scale of the MMPI. They contained no anxiety or anxiety relevant content. The thing about this scale that intrigued us most was its statistical relationship to the anxiety scale in which it was contained. The authors of the scale reported low and insignificant correlations between the CMAS and its lie scale, in marked contrast to the high correlations obtained between TASC and its lie scale. From our theoretical point of view the CMAS findings were not surprising since its lie scale was not concerned with anxiety relevant content. However, since their results which were based on a relatively small sample of fifth grade children in Iowa, may have been peculiar to the sample studied, we proceeded to employ their lie scale on groups more closely resembling, at least geographically, the population with which we have carried out our own studies.

The first study we carried out was pilot in nature and involved four different conditions of administration.

GASC with its lie scale
 GASC with CMAS lie scale
 CMAS with its lie scale
 CMAS with GASC lie scale

Two different classrooms were used for each condition making a total of eight classrooms. The results are presented in Table 1. It seems clear

TABLE 1

Correlations between Lie and Anxiety Scales (Pilot Study)

	GASC	CMAS
GASC lie	Girls -.53* (N = 48)	Girls -.61* (N = 45)
	Boys -.68* (N = 45)	Boys -.63* (N = 53)
CMAS lie	Girls -.05 (N = 49)	Girls -.21 (N = 44)
	Boys .05 (N = 59)	Boys .02 (N = 60)

* $p < .01$

from these results that the GASC lie scale, which has reference to anxiety, correlates with the two anxiety scales to a much greater degree than does the CMAS lie scale, which has little reference to anxiety—a result in line with our previous discussion. From these results, at least, it would seem that the identification of a lie or defensive tendency should take into account the relation between the content of the lie items and the personality variable presumably being studied.

The second study involved the entire fifth grade population of the Hamden public school system. There were three types of administration:

1. One third of the classrooms were given the TASC first followed by the GASC (containing the lie items) with the lie scale of the CMAS appended to the GASC.

2. Another third of the classrooms received the TASC and GASC in reverse order with the lie scale of CMAS coming at the end of the testing session.

3. The remaining third of the classrooms were given the CMAS (including its lie items) with the GASC lie scale appended.

The results of this study are presented in Table 2. Before discussing these results, however, we must mention several problems which present difficulties in interpreting some of the findings. First, the correlations involving the lie scales when they were tacked on to other scales

TABLE 2

Correlations between Anxiety and Lie Scales,
with "Other" Lie Scales Appended

Administration	Scale	TASC	GASC	GASC Lie
TASC-GASC (boys)	CASC lie	-46 *	-70 *	
	CMAS lie (appended)	14	10	03
TASC-GASC (girls)	CASC lie	-39 *	-58 *	
	CMAS lie (appended)	09	07	26 †
CASC-TASC (boys)	CASC lie	-58 *	-55 *	
	CMAS lie (appended)	05	-14	26 †
CASC-TASC (girls)	CASC lie	-43 *	-48 *	
	CMAS lie (appended)	01	05	17
		CMAS	CMAS Lie	
CMAS (boys)	GASC lie (appended)	-56 *	35 *	
	CMAS lie	-32 *		
CMAS (girls)	GASC lie (appended)	-68 *	41 *	
	CMAS lie	-31 *		

* $p < .01$ † $p < .05$

are not as meaningful as they would have been were they integral parts of the other scales. Second, one of the formal differences between the CMAS and our anxiety scales is that the CMAS items are phrased as statements and the subjects requested to indicate their agreement or disagreement with these statements, whereas our items appear as questions to which the subjects answer "yes" or "no." When we added the CMAS lie items to the end of our anxiety scales the person administering the scales pointed out to the students the difference in phrasing. Third, the CMAS items are ordinarily presented to the children written on individual sheets of paper and the children are themselves required to read the items. As previously noted, when we administer our scales the children are given answer sheets and the items are read to them by the tester. Thus, in adding the lie scales to the other anxiety scales, we were forced to change the way in which the lie scales were normally administered.

Despite these limitations, we consider the data obtained using the different combinations as information worthy of our interest, since the correlations provide further suggestions as to the nature of our own lie scale and what directions future research should take. We are not presenting the data for any other reason than to show the source of

certain of the working hypotheses we now have about our lie scale. Unfortunately, when one works with questionnaires there are restrictions on how much manipulating one can do with items without raising the possibility that these manipulations have changed the scale considerably. When this happens the meaningfulness of past research for the "new" scale becomes questionable. This is one reason why people working with questionnaires (including ourselves) are hesitant to change anything about a scale including the type of administration, the addition of new items, and the dropping of items which have been shown to be of little value in and of themselves unless such changes have been thoroughly investigated through pilot studies and the researcher is fairly sure that the change is going to be profitable.

Perhaps the most significant finding of this study is represented by the correlations between the CMAS lie scale and the CMAS anxiety items. While the originators of the CMAS report small insignificant correlations between these two parts of their scales, a report which made their lie scale attractive, we find a significant relationship between the two scales when we administer them to children who are in the same grade as the subjects they used. The direction of the relationship is the same as we find with our own lie and anxiety scales although not as strong. Nevertheless the correlations of $-.32$ and $-.31$ are statistically significant and high enough to indicate a meaningful relationship. From the correlations we can infer tentatively that a general tendency to deny unfavorable traits is associated with a tendency not to admit to those things about oneself which are related to the experiencing of anxiety. This finding, it should be noted, is not subject to the limitations stated above relating to the addition of a lie scale to the end of a given questionnaire since in this case the CMAS was given in its standard form with its lie scale in its normal position and our lie scale given only upon the completion of the CMAS administration. Except for the correlations between our lie scale and the GASC and TASC and those between the GASC and the TASC, the rest of the correlations to be discussed are subject to these limitations.

The relationship between the CMAS lie scale and our lie scale as reflected by the relevant correlations is not clear. It is apparent that administering the scales in different ways affects the correlations obtained. When the CMAS lie scale is added to the TASC and GASC administration, the correlation between the two lie scales is much lower than when our lie scale is tacked on to the end of the CMAS. Why this is true we are unable to say. Nevertheless the correlations as they stand do suggest some relationship between a general tendency to deny as represented by the CMAS lie items and the tendency to specifically

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Despite these limitations, we consider the data obtained using the different combinations as information worthy of our interest, since the correlations provide further suggestions as to the nature of our own lie scale and what directions future research should take. We are not presenting the data for any other reason than to show the source of

certain of the working hypotheses we now have about our lie scale. Unfortunately, when one works with questionnaires, there are restrictions on how much manipulating one can do with items without raising the possibility that these manipulations have changed the scale considerably. When this happens, the meaningfulness of past research for the "new" scale becomes questionable. This is one reason why people working with questionnaires (including ourselves) are hesitant to change anything about a scale, including the type of administration, the addition of new items, and the dropping of items which have been shown to be of little value in and of themselves, unless such changes have been thoroughly investigated through pilot studies and the researcher is fairly sure that the change is going to be profitable.

Perhaps the most significant finding of this study is represented by the correlations between the CMAS lie scale and the CMAS anxiety items. While the originators of the CMAS report small insignificant correlations between these two parts of their scales, a report which made their lie scale attractive, we find a significant relationship between the two scales when we administer them to children who are in the same grade as the subjects they used. The direction of the relationship is the same as we find with our own lie and anxiety scales, although not as strong. Nevertheless, the correlations of $-.32$ and $-.31$ are statistically significant, and high enough to indicate a meaningful relationship. From the correlations we can infer tentatively that a general tendency to deny unfavorable traits is associated with a tendency not to admit to those things about oneself which are related to the experiencing of anxiety. This finding, it should be noted, is not subject to the limitations stated above relating to the addition of a lie scale to the end of a given questionnaire, since in this case the CMAS was given in its standard form with its lie scale in its normal position and our lie scale given only upon the completion of the CMAS administration. Except for the correlations between our lie scale and the GASC and TASC, and those between the GASC and the TASC, the rest of the correlations to be discussed are subject to these limitations.

The relationship between the CMAS lie scale and our lie scale as reflected by the relevant correlations is not clear. It is apparent that administering the scales in different ways affects the correlations obtained, when the CMAS lie scale is added to the TASC and GASC administration, the correlation between the two lie scales is much lower than when our lie scale is tacked on to the end of the CMAS. Why this is true we are unable to say. Nevertheless, the correlations as they stand do suggest some relationship between a general tendency to deny as represented by the CMAS lie items, and the tendency to specifically

deny the feelings of anxiety as reflected by our lie scale scores. The correlations between the CMAS lie scale and the TASC and CASC are small and insignificant, ranging from $-.14$ to $.10$. Similar correlations were obtained in the previous pilot study when the CMAS lie items were embedded in the CASC (see Table 1). In that pilot study the mode of administration was not as dissimilar from the usual mode of administration as was the case in the present study. We are of the opinion that if there is any relationship at all between CMAS lie scale and the TASC and CASC, it will be of a very modest size. One comes to a different conclusion from examination of the correlations between our lie scale and the CMAS. When we add our lie items to the end of the CMAS administration, there appears to be a relationship between the manner in which the children respond to the CMAS anxiety items and to our lie items. This relationship is even stronger than the one existing between the CMAS anxiety items and the CMAS lie scale which in this administration is embedded in the CMAS in its natural position. The relationship seems to be as strong here as it is between our lie scale and the TASC and CASC. The clearest indication of this result, when taken in conjunction with the correlations between the two lie scales, is that our lie scale is definitely related to the admission of anxiety and behavior associated with anxiety.

One might suggest another way of gaining information about the relationships between these several anxiety and lie scales. That is, we might have administered both the CMAS in its usual form and the TASC-CASC scales to the same children. In this way one would avoid the limitations imposed by removing lie items from an anxiety scale and using them in an unusual context. This is a suggestion which certainly has merit. However, when we obtained the data from which the above correlations were derived, our primary purpose was getting distributions of anxiety scores in order to select subjects for a particular experimental study. The two lie scales were tacked on to the ends of the anxiety scales only to provide us with additional data which could be used in an investigative fashion, an example of how data can be collected for a kind of pilot study at the same time one is carrying out a project having an entirely different purpose. We might add that administering the different anxiety scales to the same subjects does not solve all of the researcher's problems. As discussed in Appendix A, there are difficulties inherent in this approach owing to position effects. That is to say, the scores one obtains on scales are to some extent dependent upon the ordinal position of those scales within a group of scales as they are administered.

ACQUIESCENCE

In a chapter which discusses test taking attitudes, the topic of response sets is obviously relevant. The response set which we consider most important here is that of acquiescence. Acquiescence is the tendency of a subject to agree with whatever statement or question is presented by the examiner. Another response set of importance, especially when one is working with children as young as six or seven years of age, is a position set. This set refers to the tendency to mark the answer which appears on the same side of the answer sheet more often than not because of a "left" or "right" tendency, other position sets include such patterns as alternating one's responses between left and right, or marking three answers appearing on the left and then three on the right. There are an infinite number of such position sets, although the one most easy to detect is the straight "left" or "right" tendency, and it is this one which we feel is most apt to occur when the subjects are children, simply because it is less complicated. Unfortunately, the way our answer sheets are set up (along with those used by most other researchers) makes it impossible to determine whether a child is exhibiting a "left" tendency or an acquiescent tendency when he answers all items by circling the word "yes" on the answer sheet, since the word "yes" always appears on the left hand side of the column of answers. Similarly, when a child answers every item with a "no" response, we cannot be sure whether he is operating with a tendency opposite to that of acquiescence or is exhibiting a "right" position set.

When one speaks of a response set such as acquiescence, he is referring to a tendency on the part of the respondent to answer "yes" regardless of the content of any particular item. That is to say, at its strongest, the acquiescent tendency would result in "yes" answers to both of the following questions: "Are you a boy?" and "Are you a girl?" Of course, acquiescence to both of these statements would imply something more serious than the phrase "tendency to acquiesce" implies, but the tendency does seem to operate in some people at lesser, yet noticeable, strengths. The considerable effect that acquiescence has on the scores obtained on personality questionnaires has been significantly demonstrated in a number of studies (Christie et al, 1958).

As we indicated in Chapter 4, we were aware at the beginning of our research of the possible significance of acquiescence effects on the questionnaires we were using. Our choice of format was deter-

mined by our own clinical experience with very young children as well as advice from educators that if one hoped to administer questionnaires to children in the earliest grades the format of the answer sheets should be as simple as possible. There was no gainsaying, however, that the problem would require study because the way in which our scales are set up makes it impossible for us to determine whether or not a high anxiety score indicates anxiety or acquiescence. Every time a youngster encircles the "yes" response he appears to be admitting to anxiety and thus he gets a higher anxiety score. However, when a child gets a high anxiety score we really cannot say whether he was admitting to anxiety experiences or was just exhibiting a strong tendency to acquiesce. In other words, the child may not be responding to the content of the items at all, but only answering "yes" because he has a tendency to do so no matter what question is asked of him.

There are several ways to investigate the extent to which acquiescence affects scores on a questionnaire in a given population. One of the most popular is to take one half of the items and reverse them in such a way that they are stated negatively. The researcher then compares the scores obtained on each of the two halves of the questionnaire. A person who is acquiescing should answer "yes" to items of similar content whether they are stated negatively or positively. For example, if a person responded "yes" to the item "Are you afraid of things like snakes?", we would expect that he would respond in the same way to the item "Are you afraid of spiders?", since we have found a high positive correlation between these two items. If we then changed the second item to read "Do you like spiders?", we would expect that if this person were answering to the content of the items, then he would reply "yes" to the question about snakes and "no" to the revised spider item. However, if he were merely acquiescing to whatever question was presented, he would reply "yes" to both items despite the revision of the second.

A second method of studying acquiescence is derived from essentially the same logic which underlies the previous approach. Since we were interested in getting some information about the acquiescence tendencies of the children taking our anxiety questionnaires as soon and as economically as possible, we decided to forego the use of the first method for the present because it meant that we would have to use a new population of subjects. We therefore employed the rationale that if a person who acquiesces answers "yes" to any question, one would expect that he would answer questions not having anxiety relevant content in the same way in which he responds to

anxiety items. Our plan was to present a questionnaire to children who had already taken the TASC and GASC scales. This questionnaire was to be made up of items which did not contain references to anxiety, but were evaluative questions about children. The format of this scale was the same as that employed in the administration of the anxiety scales. That is, the items were in the form of questions which were read to the children by an adult other than the teacher and which were answered by the children on an answer sheet similar to that used with the anxiety scales. The items were unlike the anxiety items in that one half of them referred to positive attributes of children whereas the anxiety items can be thought of as referring mostly to unfavorable characteristics. An acquiescence score was to be derived by merely counting the number of "yes" answers made by each child on this scale. An indication of the role of acquiescence in determining scores on the anxiety scales would then be obtained by correlating the acquiescence score of the new scale with the anxiety scale scores.

In order to insure that the acquiescence score would reflect a tendency to say "yes" regardless of content, we wanted to be sure that the items in the scale contained a variety of content. We decided to use 40 items, divided into four types which we called "Good about the self," "Bad about the self," "Good about others" and "Bad about others." The 20 items which referred to "the self" were actually the same as the 20 items for "others" except that they were worded so that they referred to different objects. For example, "Are you an honest person?" was a "Good about the self" item, and "Are other people honest?" was a "Good about others" item. Our original intention was to have the same 20 items used for both the "Good" and "Bad" sections of the scale, except that one would be stated positively and the other negatively. However, in selecting the items we found that this was impossible, since it became evident that a given adjective stated positively, does not necessarily have the same positive value as it has negative value when stated in the opposite way. The first step in selecting items was to present a list of some 70 adjectives such as "happy," "unhappy," "fair," "polite," "impolite," and "cruel" to about 100 fifth graders and have them rate these words on a four-point scale of "Goodness." We told these children that they were to indicate whether they thought each of these words when applied to people meant that these people were very good, good, bad, or very bad. It was from these ratings that we found that a word stated negatively may not mean as much to children as it does when stated positively. For example, the word "fair" might be rated "good," but the

word "unfair" might be rated as being "very bad." We then picked out those adjectives which were rated by all the children in about the same way and from these picked five from each rating category. Two questions were then constructed around each item, one referring to the self and one to others. This gave us our 40 item "Good-Bad Self Others" scale.

One other aspect of the construction and administration of this scale should be discussed before reporting the results we obtained. The group of students to whom we were going to administer the scale was the same group discussed previously in this chapter when we cited the correlations obtaining between the CMAS lie scale, our lie scale, our two anxiety scales, and the CMAS anxiety scale. About one third of this group of fifth graders had not received the TASC or GASC scales, but had taken the CMAS. The CMAS differs in format from the TASC and GASC in that (1) the children are handed the scale and asked to read the items themselves, rather than having someone read the items to them, and (2) the items are in the form of statements rather than questions. In order to have the format of the "Good Bad Self Others" scale be similar to the anxiety scale with which it was to be correlated, we made a second form in which the items took the form of statements and were printed on paper so that the children could read them. This form of the scale was then given to those children who had been administered the CMAS.

The subjects used in this study were divided into six groups. Each of the two sex groups was divided into three subgroups, each having been administered a different anxiety scale. With the exception of one of these groups, the correlations between the number of times the children answered "yes" on the "Good Bad Self Others" scale and their scores on the anxiety scales were small and statistically non-significant. The one exception was the correlation between the "Good-Bad Self Others" scale and the CMAS with male subjects. This correlation was $+0.23$, which is significant at the .05 level of confidence. However, a correlation of this size, despite its significance in the statistical sense, does not indicate a very strong relationship between the two scales and does not enable us to consider the results as indicating that acquiescence is an important variable in determining anxiety scores.

It should be made clear that the results of this limited investigation of acquiescence do not allow us to dismiss the problem. In the first place, the items of the "Good Bad" scale were worded in a way which should have discouraged the children from neglecting their content. The literature on acquiescence indicates that seldom, if ever,

does the acquiescent tendency operate in subjects with enough strength so that they disregard content completely. Rather, it apparently operates in such a way that a subject's responses reflect an interaction between his acquiescent set and his perception of the meaning of the content of the items. Thus, where the content of the items is non-ambiguous, as well as important to the subject, one would expect that the effects of any acquiescent tendencies which he may possess would be diminished. With this view of the way in which the acquiescent set operates, one is able to see how it might have been unlikely that children would answer "yes" to many of the items on the "Good Bad" scale. All of the items were stated in a definite manner, and all of them described personal characteristics which seem to be important to children. For example, one of the items reads "Do you think that you are a cruel person?" The connotation of cruel is such that unless a child possessed strong feelings of self-deprecation, his acquiescent tendency would have to be of great strength to cause him to respond in the affirmative to this item. Had the item read "Do you think that sometimes you are cruel?", there might have been more interaction between the content and the acquiescent tendencies of the child. Quite aside from the limitations imposed on this study by the type of items which we used is the logical question of the meaning of a study when one obtains nonsignificant results. No matter what a study is concerned with, if one fails to find a relationship between two variables, this does not "prove" that there is none. It merely indicates that the researcher has not been able to find a relationship. Since the nature of the items imposed obvious limitations on the present study, it would be fair to conclude that we did not find evidence for the supposition that acquiescence plays a role in determining anxiety scores, but that this supposition may still have some validity.

FUTURE WORK WITH THE LIE SCALE

We view the work we have done with our lie scale as initial steps in our research on the role of test-taking attitudes. Perhaps the most important aspect of these initial studies is the support it has given to our theoretical conclusion that the lie or defensive tendency could not be viewed as a general factor which would be manifested regardless of the content of the questionnaire or the lie scale associated with it—a conclusion which was stated on empirical grounds several decades ago (Hartshorne, May, and Shuttlesworth 1930) but not given the recognition it merited in subsequent research. However, certain of

our results (i.e., the correlations between CMAS lie and GASC lie scales) suggest that there may be a modest relationship between different defensive tendencies, defined in terms of differences in content of items by which such tendencies are evaluated. This problem will probably not be greatly clarified until we develop (a) a variety of questionnaires each of which focuses on an important but different variable or type of experience, and (b) each of which contains a lie or defensive scale homogeneous and appropriate in content. If these instruments can be developed—particularly if their different contents have some interrelationships in a theory of personality—we will be in a far better position than we are now to investigate the complexity of relationships between content and defense.

There is one problem we raised earlier in this chapter which we have not as yet studied, and, in our opinion, it is and will be the most thorny. We refer here to the point that the usual mode of identifying a defensive tendency is unrevealing of the type of defense being employed by the individual. Let us take an example from the face to face diagnostic situation. If an individual cannot respond to a Rorschach card, we usually do not know if he is consciously inhibiting a response, if "nothing" really came to his mind, if he is suspicious of the intentions of the examiner, if there are obsessive ruminations, if there are compulsive concerns about the adequacy of the response, etc. What one predicts or postdicts about the individual's behavior will in part be a function of which covert response is associated with the rejection of the Rorschach card. Conclusions based only on knowledge of the overt response may have some predictive value but certainly not as much as if we knew something about the covert response. We are faced with a similar problem with questionnaires when all we know is that an individual has a high defensiveness score, i.e., he has unduly avoided admission of a particular type of experience. The problem of future research is how to develop means for identifying the type of defensiveness employed by the individual. In our opinion this is a vast and uncharted problem area which has great practical significance for screening procedures—procedures which, in our opinion, will allow us to attack the problem of the early and valid identification of personality disorder. The immediate problem is how one utilizes clinical experience and theoretical understanding in developing group procedures which do justice to the complexity of personality.

Initial validity studies

CHAPTER 6

Thus far in this book we have been concerned with stating hypotheses, evaluating their status in the research literature, and describing the anxiety scales particularly in relation to the role of distortion in self report questionnaires. In this chapter we present a series of studies which were done in the beginning years of our research in order to determine whether our scales particularly the TASC, had a degree of validity which would merit refinement and subsequent research.

We assumed that to the extent that our anxiety scales allowed us to predict behavior correctly in a number of different but relevant situations the scales possessed what has been termed "construct" validity (Cronbach and Meehl, 1955). Seen in this light, each study undertaken to validate the scales is not, in itself, a "crucial," either or kind of study. It merely adds to the total network of studies which constitute evidence for the validity of the construct (anxiety) from which the item content of the instrument has been derived. For example, if the theory defining the construct leads us to expect certain outcomes from ten different investigations and the expectations are unconfirmed in two of them we do not throw out the instrument and start all over. While any failure in prediction necessitates the gathering of additional data before the questions raised by the failures are answered, the essential validity rests in the accumulation of diverse confirmations, not upon separate ones. If however, theory led us to expect that the two situations which gave rise to the failures of confirmation were of preponderant significance relative to the other eight, we would then have more doubt about the validity of our instrument.

and would be correspondingly attentive to the source of failure and a test of its constancy

In basing research efforts on these considerations, therefore, we were led to undertake a diverse series of investigations, employing the to-be validated instrument as the independent variable with dependent variables varying from teachers' ratings of children's anxieties to Rorschach performance and paired associate learning. Since all investigations presented in this volume were conceived within the bounds of the theoretical considerations presented in Chapter 2, their results constitute evidence on the validity of the construct, anxiety, defined by that theory.

The research reported in this book falls into two categories: (1) global investigations, the primary aim of which was to provide evidence on validity, and (2) circumscribed experiments, the purpose of which was to throw light on the relationship between anxiety, as appraised by the TASC, and one or two particular variables of relatively more importance than those investigated in the global researches. The remainder of the present chapter is concerned with the results of studies constituting the first category. Since research was carried out with initial and then revised forms of both the TASC and the GASC, results using the initial forms are presented as a unit first, followed by results employing revised forms.

RESEARCH EMPLOYING INITIAL FORMS OF THE TASC AND GASC

Teachers' Ratings and Anxiety As a preliminary attempt to appraise the promise of the TASC, teachers were asked to rate pupils on 17 items derived from the same *a priori* considerations as were the TASC items.* Correlations were then computed between the TASC and the teachers' ratings (TR). The TASC was administered to 2211 pupils from grades 2 through 5, chosen from the Milford and Greenwich, Connecticut, school systems. Table 3 presents the distribution of pupils and classrooms across grades and schools in addition to the resulting correlations between TASC and TR. While the statistical significance of these correlations tends to flatter their size, there is clearly indicated here a degree of systematic relationship.

Regarding the generally small size of these correlations, it must be pointed out that while a page of directions was given to each teacher, outlining the type of behavior and tendencies we considered important in judging anxiety, there were no meetings which could

* See Appendix C for the rating scale.

TABLE 3

*Correlations of TASC and TR, Class by Class Averaged
for the Various Grades in Both School Systems **

Grade	No of Classes	Total N	Average r †	Significance of r , p
Greenwich				
2	6	142	31	< .001
3	7	160	21	< .02
4	6	142	.29	< .001
5	6	139	27	< .01
All grades	25	583	27	< .001
Milford				
2	17	469	10	< .05
3	15	377	09	< .10
4	15	417	34	< .001
5	14	365	18	< .01
All grades	81	1628	18	< .001
Total both schools				
All grades	86	2211	20	< .001

* From Sarason et al (1958c)

† The average r was obtained by Fisher's method of transforming the original r for each class into z and then obtaining the weighted average value of z and reconverting to r

properly be considered "training sessions" The informality of our procedure was definitely reflected in the distributions of scores on the ratings There was evidenced in these distributions a marked tendency for some teachers to use restricted parts of the rating scale, and great individual differences existed between teachers as to which portions of the rating distribution they chose to use predominately Some considered virtually all of their students to be devoid of anxiety, whereas other teachers grouped their pupils very closely around the mid point of the scale with one or two at the extremes Still other teachers used the entire scale range Some of these grouped their pupils in a normal distribution about the mean, some grouped their pupils evenly from one end of the scale to the other In addition to these differences in distributions, there was manifest in the teacher returns a wide range of effort and time spent in making the pupil evaluations The task of rating each of some 30 pupils on 17 separate

anxiety indicators was met with enthusiasm by some, seriousness by most, near rejection by others

In view of these widely differing uses of and responses to the rating scale by the teachers, the degree of relationship between the TASC and the TR was viewed as being at least encouraging, if not somewhat remarkable

Intelligence and Achievement Because test anxiety was conceived of as being primarily interfering in its effect upon intellectual performance, correlations of the TASC with both IQ and achievement were expected to be significant and negative. However, since the effects of intelligence and learning are so predominant in mental ability and achievement tests, the correlation of these latter with the TASC was expected not to be large (not more than -50). Correlation coefficients of the relationship between the TASC and IQ and achievement are presented in the upper section of Table 4 for both the Milford and Greenwich school systems. The direction of the relationship is quite clearly negative, indicating that as the level of test anxiety increases, the level of IQ and mean achievement decreases. Only for the Milford schools, however, are the coefficients large enough to be considered indicative of a stable relationship between the TASC and intellectual variables.

In addition to significance and direction of correlations we expected that the size would vary with grade level. We assumed that as the grade level increased the number of examinations would increase and that anxiety (in pupils already disposed to experience anxiety in test situations) would also increase concomitant with an increase in interference with intellectual functioning. Hence it was expected that correlations of the TASC with group IQ and achievement test scores would increase in size but remain negative in direction as grade level increased. This expectation was confirmed, as shown by the coefficients presented in the upper section of Table 4.

However, when the TR of children's test anxiety are correlated with achievement and IQ (lower section of Table 4), the linear trend is reversed and correlations are generally larger. That is, instead of increasing with grade level, as with TASC correlations in the upper part of Table 4, the correlations of TR with IQ and achievement decrease in size as the grade level increases. As we have suggested elsewhere (Sarason et al., 1958a), there are several factors which probably contribute to the tendency for the TR of anxiety to be increasingly unrelated to IQ and achievement as one goes up the grades.

¹ It is likely that the overt indicators of anxiety are more blatant and frequent in the younger than in the older school child. In other

words, it may be more difficult to recognize symptoms of anxiety in the older child than in the younger one

2 The usual training of teachers is not such as to allow one to assume that they would be especially proficient in the recognition of the less blatant indicators of anxiety

3 Since several of the TR items refer almost exclusively to use of recitation for evaluating pupils' learning it may have been that the

TABLE 4

Correlations between Mean Achievement and IQ
and Two Measures of Test Anxiety TR and TASC

	Grade 2	Grade 3	Grade 4	Grade 5
Greenwich				
	(N = 124)	(N = 138)	(N = 125)	(N = 120)
TASC vs mean achievement ¹	-.002	-.166	-.141	-.234 *
TASC vs IQ ²	-.012	-.119	-.083	-.179
Milford				
	(N = 413)	(N = 329)	(N = 351)	(N = 306)
TASC vs mean achievement ³	-.166 †	-.249 †	-.270 †	-.294 †
TASC vs IQ ⁴	-.196 †	-.214 †	-.275 †	-.284 †
Greenwich				
	(N = 124)	(N = 138)	(N = 125)	(N = 120)
TR vs mean achievement ¹	-.533 †	-.504 †	-.393 †	-.196 *
TR vs IQ ²	-.161	-.182 *	-.382 †	-.215 *
Milford				
	(N = 413)	(N = 329)	(N = 351)	(N = 300)
TR vs mean achievement ³	-.419 †	-.353 †	-.301 †	-.127 *
TR vs IQ ⁴	-.301 †	-.300 †	-.176 †	-.125 *

* Significant at the 5% level

† Significant at the 1% level

¹ Grades 2 3 4 Gates Advanced Primary Reading (administered in grade 2), grade 5 Stanford Achievement, Intermediate Battery J

² Grades 2 and 3 Pintner Cunningham grades 4 and 5 Kuhlmann Anderson

³ Stanford Achievement, Battery K—grade 2, Primary, grades 3 and 4 Elementary, grade 5, Intermediate

⁴ Grades 2 3, and 1 Otis Alpha grade 5 Otis Beta

increased use of written tests (where affective processes are relatively covert) in the fourth and fifth grades rendered the rating scale less valid in these later grades

As a consequence of these factors and of previous considerations regarding teacher differences in use of and reaction to the rating scale, we place greater weight upon correlations of the child's self-rating of anxiety (TASC) with his performance on tests than we do upon correlations between the TR and children's performance

Relation between Test Anxiety, General Anxiety, and Mental Ability As the constructs test anxiety and general anxiety were described in Chapter 2, their developmental conditions were seen as mutually reinforcing. Consequently, there is implied a relation between scores on instruments which measure these constructs, and we expected scores on the TASC to be correlated with scores on the GASC. We also indicated, however, in Chapter 2 that there are many more sources of differences between school and non school situations which can make for differences in intensity and frequency between anxiety experienced in test situations and anxiety experienced in situations where evaluation of adequacy by authority figures is absent or minimal.

In Table 5 are presented the correlations between TASC and GASC for children in America and England. Later in this chapter we discuss the English findings in some detail. At this point we wish only to

TABLE 5
Correlations between TASC and GASC for
Pupils in American and English Schools

	Grade	Boys		Girls	
		r	N	r	N
American	1	.47	88	.63	90
	2	.51	114	.55	116
	3	.68	113	.50	117
	4	.67	42	.33	38
	5	.69	40	.57	39
	6	.67	160	.63	160
English	1	.15	70	.55	84
	2	.47	74	.30	67
	3	.46	107	.35	94
	4	.42	85	.30	106
	5	.41	53	.46	48

indicate that there is a consistently positive and relatively strong relation between scores of the TASC and those of the GASC. No consistent trend is apparent (e.g., between grades) except that the correlation coefficients of English pupils are, grade by grade, lower than those of American pupils. We consider these data as strongly supporting the hypothesis, presented in Chapter 2, that the child who is test anxious is one who also experiences anxiety in a variety of situations—a finding similar to that found with college students.

We anticipated that the relation between TASC and tests administered by authority figures would be significantly higher than between GASC and such tests. Thus the TASC should "predict" IQ, achievement test scores, and school marks significantly better than the GASC.

Correlations between the TASC and GASC, on the one hand, and mean achievement test score and IQ, on the other, are presented in Table 6. If the individual correlation coefficients of the TASC with mean achievement or IQ are compared to those of the GASC with mean achievement or IQ, the former are not significantly different from the latter. That is, in any given single group of children in, say, a given grade order category, their performance in achievement or IQ group tests is not significantly more related to test anxiety than to general anxiety. However, if all the "non liar" correlations in Table 6 are considered as one group, and all the TASC correlations are compared to all of the GASC correlations, it is manifestly apparent that there is an overwhelming tendency for the correlations of mean achievement and IQ with the TASC to be negative and larger than are those with the GASC. Thirty of the 32 TASC correlation coefficients are more in the negative direction than the GASC coefficients, a highly stable trend. The median size of the difference resulting from subtracting the GASC coefficients from the TASC coefficients algebraically is .16. And if *r*_{mv} differences are taken, subtracting the GASC coefficients from comparable* TASC coefficients, 23 of the resulting 32 differences are .10 or greater. This indicates a significant ($\chi^2 = 2.30$, $p < .01$)† tendency for the TASC to be related to IQ.

* "Comparable" here means involving the same variables (e.g., the correlation of the TASC with IQ is "comparable" to the correlation of the GASC with IQ).

$$\dagger \chi^2 = \sum \frac{(|c - e| - .5)^2}{e} = \frac{(|9 - 16| - .5)^2}{16} + \frac{(|23 - 16| - .5)^2}{16} = 5.28, \\ \chi_c = \sqrt{5.28} = 2.30$$

The expected frequencies here certainly stack the cards against the hypothesis of finding differences greater than .10. There is probably much less than a 50-50 chance of obtaining a difference .10. Since a justifiable estimate of what the theoretical expectancy of a difference equal to or greater than .16 would be is un-

TABLE 6

Correlations of IQ and Achievement with TASC and GASC Scores for the Total Samples and the Total Sample with High 'Liars' Omitted¹

Correlated Variables	Grade 3	Grade 4	Grade 5	Grade 6
Total Sample				
TASC vs IQ ²	-.251	-.229	-.213	-.297
TASC vs mean ach ³	-.203	-.236	-.172	-.313
CASC vs IQ	-.119	-.191	-.162	-.062
GASC vs mean ach	+.053	-.075	-.090	-.078
N	383	355	358	325
Total Sample without 'Liars' ⁴				
TASC vs IQ	-.282	-.197	-.307	-.385
TASC vs mean ach	-.232	-.260	-.249	-.412
CASC vs IQ	-.186	-.146	-.208	-.117
GASC vs mean ach	-.100	-.090	-.157	-.121
N	323	299	302	274

¹ Each grade group was drawn from two school systems in which the scales were administered to approximately one-half of the sample in TASC-CASC order and the other half in CASC-TASC order. Correlations were calculated separately, transformed to Fisher's z , weighted according to the number in each subgroup, and averaged. Differences between orders of presentation or between school systems were not significant.

² IQs derived from scores in the Otis Alpha, Otis Beta, Pintner-Cunningham, or Kuhlmann Anderson group tests.

³ Mean achievement scores obtained from the Gates test of Primary Reading (grade 2) or various levels of the Stanford Achievement tests, all are group-administered tests.

⁴ Pupils scoring 9 and above (maximum possible score 13) were omitted from this group.

and mean achievement more closely than is the GASC. Regarding mean achievement (as measured by standardized tests) and IQ, then, our hypothesis of a higher relationship with the TASC than the GASC is supported.*

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available the conservative 50-50 expected frequency has been used to evaluate the obtained frequency. The probability value is derived from $\sqrt{X^2}$ looked up as a critical ratio in the table of normal deviates one-tailed test.

* Data relative to the relationship between anxiety variables and school grades are not available for the initial forms of the TASC and GASC but are available for the revised forms and will be discussed below.

gations on the TASC were encouraging. The expected negative relation between TASC scores and gross intellectual indicators such as group IQ and achievement tests was confirmed. Moreover, the TASC was consistently more closely related to those indicators than were scores on the CASC. While the TR of children's anxiety resulted in some doubt about what the TASC was measuring, consideration of the variability of the TR within and between classrooms revealed that this source of data was suspect. And finally, our expectations about the effect of increased grade level upon mean level of test anxiety were confirmed—anxiety level rising with grade. It was felt that further research employing the TASC and CASC was called for. But such research would be improved by a purification of item content of the scales. Consequently, item analyses of both the TASC and the CASC were carried out, the best items being cast into new and shorter questionnaires. The revised versions of TASC and CASC contained 30 and 34 items respectively. Within the CASC was embedded an improved 11 item lie scale. With these improvements the studies to be reported below were carried out.

In hypothesizing that test anxiety would have an interfering effect on test performance, we were quite aware that tests differed in their "test like" quality. It will be remembered that in Chapter 2 we indicated that although test anxiety would have primarily an interfering effect on test performance, this relationship would not be as strong under certain testing conditions. The research which we now present represented attempts to study such relationships using different types of group tests.

Relation of TASC to the Davis Eells Games and the Otis Tests
The results of this study have been reported elsewhere (Zweibelson, 1956) and will not be treated in detail here. The major hypothesis of Zweibelson was that the correlation between the TASC and the Davis Eells games would be significantly lower than between the TASC and the Otis tests. The basis for the hypothesis was that, in contrast to the Otis tests, the Davis Eells games are not presented as tests, there are no time limits, and reading is not required. In short, the Davis Eells is far less test like than the Otis tests (see Table 7). This hypothesis was confirmed. The correlation between the TASC and the Davis Eells games was $-.14$, whereas between the TASC and the Otis Beta and Alpha it was $-.23$ and $-.24$ respectively. The difference between these correlations was significant despite the fact that the Davis Eells and the Otis tests are significantly correlated with each other (approximately $+.49$). In other words, there is a fair degree of communality in what is measured by these group tests.

TABLE 7

Major Differences of Three Group Mental Ability Tests *

Factor	Difference		
	Otis Alpha	Davis-Eells	Otis Beta
Test items	variety of problems include geometric, pictorial, and language ability items	real-life problems, personal-oriented	school achievement
Style	semiacademic	semihumorous	academic
Method of administration	semiformal test atmosphere	game atmosphere stressed	formal test atmosphere
Instructions	little provision for praise and reassurance	substantial provision for praise and reassurance	little provision for praise and reassurance
Format	free of reading small, clear pictures	free of reading large, clear pictures	reading required print
	picture or symbol marked	large space for mark next to test item	small space on separate sheet for mark
	booklet form	booklet form	3 sheets fold like accordian
Provision for practice	short period preceding each of two sittings	substantial periods preceding several sections	short period preceding the one sitting
Time limit	40-50 minutes	100-120 minutes	30 minutes
Speed factor	emphasis tends to be on power although some don't have time to try all of the items	emphasis upon power, each pupil could attempt every item	speed important, no pupil could attempt every item

* From Zweibelson (1956).

of intelligence and yet they relate differentially (but predictably) to anxiety score.

Relation of the TASC to Increase in Score over Time on the Davis-Eells and Otis Beta. In a subsequent study Lighthall et al. (1959b) obtained a sample of cases to whom the TASC had been given in the fourth grade. The following data were available on these subjects: Otis Alpha scores obtained when the subjects were in the second and

fourth grades; Otis Beta scores from the fifth, sixth, and seventh grades; and Davis-Eells scores from the fifth and seventh grades. In analyzing the data extreme groups on the TASC were not used, as in the Zweibelson study, but rather groupings based on above-or-below the median TASC score. It was found that although Alpha gains from second to fourth grade were not significantly related to (fourth grade) test anxiety grouping, the Beta gains from fifth to seventh grade tended to be related to test anxiety grouping. The striking finding in this study was that whereas the gains of the low anxious on the Beta tended to be greater than the high anxious children, *the high anxious children gained significantly more over time on the Davis-Eells than did the low anxious children.*

The above two studies were obviously in line with our expectations (a) that test anxiety interfered with test performance and (b) that the degree of interference was a function of the kinds of tests employed. (It was these kinds of findings, in fact, which encouraged us to continue to maintain the hypothesis that under certain testing conditions the high anxious child would perform better than the low anxious child—an hypothesis which we take up in greater detail in the next chapter.) Although these studies produced significant and predictable findings, they did not deal in any systematic way with the reasons for the differences between the tests, e.g., the Otis Beta and Davis-Eells. There are two very prominent and general differences between the two instruments. The first is that mentioned in the two above-cited studies: the test- or game-like character of the instruments. The second difference between the tests concerns the presence or absence of a reading ability requirement. That is, the contents of the instruments are different with respect to an important phase of school activity. The Otis Beta and Davis-Eells tests present different stimulus tasks. It is possible that the different effect of test anxiety on these two mental tests is a function of the presence or absence of the requirement of reading ability. More generally, it is possible that the differential effect of anxiety is a function of the presence or absence of stimuli closely related to classroom learning (including evaluative) activities. Following this line of thought, we might ask, for example, *is the classroom activity (including test situations) involved in learning arithmetic more stressful or anxiety-arousing than the activity involved in learning to spell or to read or to write?* In general, then, we may inquire whether there are different degrees of anxiety-arousing content (test cues) inherent in specific classroom learning activities.

In an attempt to focus more systematically on the relation between

anxiety and differences in test content, it was decided to employ Thurstone's battery of Primary Mental Abilities Tests. Since the study has not appeared elsewhere, we shall report it in some detail.

THE TASC AND PRIMARY MENTAL ABILITIES

Problem The present study inquires two things about scores on the TASC. First, do these scores relate differentially to different stimulus tasks? Specifically, is there a differential relation between TASC scores and the seven stimulus tasks presented in Thurstone's tests of Primary Mental Abilities (PMA)?* Second, if there is a differential relationship among the seven PMA scores and TASC scores, does this differential reflect differences among the PMA tests similar to the principal differences between the Otis Beta test and the Davis Eells games noted above? That is, if there are differential relationships among the several PMA tests on one hand and the TASC on the other, do the different relationships reflect differences in test- and game-like characteristics of the various PMA tasks? Or, on the other hand, do the different relationships parallel the differences among PMA tests in the degree to which reading ability is required? Or, finally, do these differential relationships reflect the degree to which PMA tests share the test cues present in school learning activities?

Hypotheses First, we hypothesized that there would be a significant over-all relation between the PMA tests and the TASC. Second, we predicted that there should be significant differences among the relationships of the seven PMA tests to TASC scores. Third, these differences should reflect one or more of three characteristics of the separate PMA tests: (1) the test- or game-like nature of the PMA tests, or (2) the degree of reading ability required by the tests, or (3) the degree to which the tests contained culturally familiar stimuli. This third hypothesis was suggested by the relation between performance in unstructured situations and anxiety. It is assumed (Sara-son et al. 1955b) that in unstructured situations† where the child faces culturally unfamiliar stimuli, as in the Rorschach situation, anxiety will be more interfering with performance than it will in situations which are structured and which have culturally familiar stimuli. But it is probably also true that even in structured test situations where culturally unfamiliar stimuli constituting novel tasks are employed, anxiety may well be more interfering than in structured situations with culturally familiar stimuli. Since some of the PMA tests (e.g.,

* A brief description of the PMA tests will be found in Appendix D.
 † The child has no specific solution to look for.

perception and figure grouping) contain relatively unfamiliar stimuli, we hypothesized that the differential relationships of PMA tests to the TASC would reflect the degree to which PMA tests contained culturally unfamiliar stimuli

Procedure

Subjects Five hundred fifty three boys and girls from the third and fourth grades served as subjects. 112 third grade boys, 137 third grade girls, 153 fourth grade boys and 151 fourth grade girls. These four groups were kept separate in the analysis, their scores being combined only when there was no evidence of difference. The PMA tests were administered to these subjects in the manner prescribed by the test manual (Thurstone and Thurstone, 1954).

Design The hypotheses were testable through the use of multiple regression, separately for the four groups. Tests were made for differences in elevation and for non parallelism of partial regression coefficients.

Since sex differences in the TASC mean have been found repeatedly, a significant difference in elevation was expected. The test for non parallelism of regression coefficients among the four sex grade groups would test whether, from group to group, the same PMA tests differed in their degree of TASC variance explanation. Pivotal reductions (DuBois, 1957) in PMA ("prediction") covariance matrices set up in various orderings of variables, would test our second and third hypotheses.

Results

First hypothesis The over all R between the TASC and PMA scores was .24, which, with 7 (PMA) and 545 ($N - K - 1$) degrees of freedom, is significant at less than the .001 level. Separate R s were computed for each group to see what increase in relation would result from considering scores as distributed around their own group regression line. Third and fourth grade boys' scores yielded R s of .35 and .41 respectively, the girls' scores yielded R s of .30 for both grades.* Our expectation that there would be a significant relation

* To test these R s for sex differences, mean z transformations of the R s were computed, weighted according to the number of subjects in the two sex groups and tested for significance. The p value obtained was .14. The formula for the standard error of differences of R s was the same as that given in Edwards (1950) except that a correction was made in the degrees of freedom for the number of variables in the prediction and for the averaging of the two z transformations. The formula used for the standard error was

$$S.E. Z_1 - Z_2 = \sqrt{\frac{1}{\lambda_1 - k - 4} + \frac{1}{\lambda_2 - k - 4}}$$

where λ , the number of predictors (PMA) = 7. The multiple R resulting from the

slip between TASC scores and the PMA is, therefore, confirmed

Second hypothesis A test of the second hypothesis, that there would be a differential relation between the various PMA tests and the TASC, was available in a single test of the significance of the difference between the common regression coefficients* of the two tests most discrepant in their correlations with the TASC. The value of F with 1 and 545 ($N - K - 1$) degrees of freedom was 1.06, $p < .05$. The second hypothesis is therefore supported. That is, PMA tests differ significantly among themselves in the degree to which they are related to the TASC.

Third hypothesis The third hypothesis concerns the specific pattern of relations between the TASC and the various PMA tests. We predicted that the interrelationships would fall into one or more of three patterns based, respectively, on three characteristics or global test cues: (1) Test like versus game like nature; (2) Degree of reading ability required; (3) Degree of familiarity or novelty.

The seven tests of the Elementary level (ages 7-11) PMA battery were put into order along these three continua as they appear in Table 8. Since placement of these tests along the continua was done informally, with no attempt at rating reliability, we were confident in the ranking of the extremes only. Therefore, in evaluating the predictions concerning the patterns of TASC-PMA relationships, we employed the PMA tests (Rw, N, P, S, etc.) of the extremes on the three continua that have weights beside them in Table 8. These weights reflect the relative magnitude and direction in which tests were expected to be related to the TASC. For example, Rw and N together should, on the test like hypothesis, account for more TASC variance than P and S together.

There appear to be three continua here: degree of test likeness; degree of reading ability required; and degree of familiarity of stimuli. These three continua are, however, not mutually exclusive. For example, a test with reading ability required *must* have culturally familiar stimuli (words) contained in it. Thus a test of reading presents not only a reading task but also presents a culturally familiar task. Any evaluation of a hypothesis concerning one of these continua necessarily is a partial evaluation of the other. While this meant that no one of these hypotheses could be tested against the other in the usual manner, it appeared possible to evaluate the data to see which

common regression corrected for group differences in TASC elevation, reaches .30

* For results and discussion of tests for parallelism and elevation of the four sets of regression coefficients for the four groups see Appendix E.

TABLE 8

Predicted Patterns of Relationships TASC versus PMA

A "Test-like" Hypothesis			B "Reading Requirements" Hypothesis		C "Cultural Familiarity" Hypothesis	
Test *	Weights		Test	Weights	Test	Weights
Reasoning 1 (words) Rw	+1		Vw	+1	Vp	-1
2 Number N	+1		Rw	+1	Vw	-1
Verbal 3 Facility (words) Vw			Rf		Rw	-1
Verbal 4 Facility (pictures) Vp			P		N	
Reasoning 5 (figures) Rf			Vp		P	+1
Perceptual 6 Speed P	-1		S	-1	Rf	+1
Spatial 7 Relations S	-1		N	-1	S	+1

* The tests are arranged in the table from top to bottom in descending order of test-likeness, reading requirements, and cultural familiarity which characterize the test (e.g., Rw is highly test-like, S is not test-like).

of these predicted patterns best fitted the obtained patterns inherent in the data. We had hypothesized that the predicted patterns would be valid in the order presented in Table 8, i.e., A (test-like) would provide the best fit and C (cultural familiarity) the poorest fit for the data.

Before considering the outcomes of the three evaluations it is of interest to note the relative importance of the tests chosen to represent the extremes of the three continua as compared to the importance of those tests placed in the middle of the three continua. Importance in this context means the degree to which the tests account

for criterion (TASC) variance. If the extremes of the continua do no better than the middle (unweighted) tests, then little confidence can be placed in the order in which the tests have been placed along the continua and, therefore, in the judgments made of the tests concerning their degree of test likeness, of reading ability required, or of their familiarity to the pupil.

The results of evaluating the relative importance of the tests in the three continua are presented in Table 9. Out of the total TASC sum of squares to be accounted for (22 022 70), all seven PMA tests account for 9.17 per cent (2 019.22). Of this common regressed sum of squares, the three sets of extreme tests account for 69 per cent, 87 per cent, and 93 per cent respectively. As the *F* ratios in Table 9 indicate the amount of overlap between extreme PMA tests and the TASC is highly significant. Thus it appears that the extremes were chosen with some degree of justification.

In considering the results of analyses pertaining to the three hypotheses, it is more convenient to present diagrams of the various

TABLE 9

Relative Importance of "Extreme" Tests in Explaining TASC Variance

Source of Variance	df	SS	MS	<i>F</i>	% of Total Common Reg
Total common reg	7	2,019.216			
1. Test like common reg (N, R _w , P, S)	4	1,401.563	350.391	9.21 *	69.4
2. Reading common reg (V _w , R _w , S, N)	4	1,758.325	439.581	11.76 *	87.1
3. Culturally familiar common reg (V _p , V _w , R _w , P, R _f , S)	6	1,950.686	330.114	9.18 *	93.1
1. Test like common residual	542	20,621.137	38.046		
2. Reading common residual	542	20,264.375	37.387		
3. Culturally familiar common residual	542	20,042.014	35.977		
Total sum of squares accountable		22,022.700			

* $p < .001$.

degrees of variance explanation rather than summary tables of variance analyses

Results of the variance analyses bearing on each hypothesis or pattern of relationships expected can be summed up in one diagram. Figures 1, 2, and 3 show per cents of variance explanation associated with each of the three continua. There are three areas represented in each diagram. Each corresponds to an amount of TASC variance accounted for by the tests indicated in the figures. Consider Figure 1. R_w and N as two "predictors" of TASC scores, explain 1,349.52 of the sum of squares on the TASC. This portion of the sum of squares (1,349.52) comes from two sources. One source is the power of R_w and N to explain TASC variation independent of the power of P and S to explain TASC variance. This power is reflected in Figure 1 by

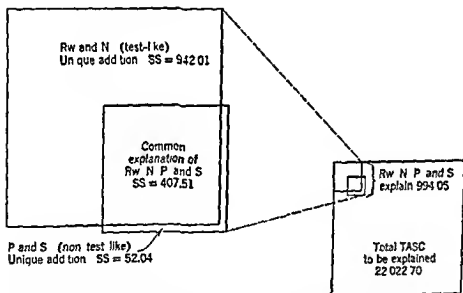


FIGURE 1. A comparison of test-like with non-test-like examinations in accounting for TASC variance in relation to the total amount of TASC variance to be explained.

* For the reader's convenience the names of the PMA tests with their symbols are presented again at this point:

- Word test of verbal meaning, V_w
- Picture test of verbal meaning, V_p
- Spatial, S
- Word grouping test of reasoning, R_w
- Figure grouping test of reasoning, R_f
- Perception (speed test), P
- Number (speed test), N

the area of the larger square that is not filled by the area of the smaller square. The number associated with R_w and N 's power to explain TASC variance independent of P and S 's explanatory power is 942.01, and represents the portion of explained sums of squares which is attributable to the explanatory power of R_w and N which is not shared by P and S , i.e., which is unique to R_w and N .

The other source of R_w and N 's explanation of TASC variance is the explanatory power of R_w and N that is shared by the other two variables, P and S . This portion of TASC variance explanation we have labeled "Common Explanation" in Figure 1. The sum of squares associated with this common explanation of the two sets of variables is 407.51. This amount of the explained sum of squares (which is the numerical representation of the TASC variation explained) is reflected in the portion of the smaller square that is within the bounds of the larger square. The amount of TASC variation which is explained by P and S and not explained by R_w and N is indicated in Figure 1 by the area of the smaller square that lies outside (independent of) the bounds of the larger square. The sum of squares associated with this area is 52.04.

The hypothesis tested by the data summarized in Figure 1 is that test anxiety is more closely related to performance on test-like tests, R_w and N , than on non test like tests, P and S . To say that test anxiety is more closely related to performance on test like tests is to say that the variation in scores on test like tests is accounted for by TASC variation in greater degree than is variation in scores on non test like tests. The comparison which best reflects the degree of support for the hypothesis is the comparison of the powers of each set of variables to explain TASC variation independent of the other. That is, we should compare the areas of the two squares that do not overlap, the areas illustrating the unique TASC explanation contributed by each set of tests.

The unique explanation of TASC variation contributed by R_w and N is, in terms of the sum of squares, 942.01. The unique addition of P and S to the explanation of the sum of squares on TASC after R_w and N is only 52.04. Thus the unique predictive contribution of the test like tests is 18 times the unique predictive contribution of the non test like tests. Since the tests were set up on the continuum, test-likeness, on an *a priori* basis, this predominance of test like tests in predictive power lends considerable support to the validity of the TASC. Of course, it must be kept in mind that *all* of the PMA tests together account for only 9 per cent of the total variation on the TASC.

All comparisons inherent in the figures must be evaluated relative to that context

Figures 2 and 3 point up the need for caution in interpreting Figure 1 out of context. Regarding Figure 2, the ratio of unique predictive contribution of reading tests to that of nonreading tests is 1,375.37/35.57 or a ratio of 39 to 1. The reading factor appears to have considerably more support than the test like factor as a contender for the scheme which best fits the data. Figure 3 presents another discrepancy between unique predictive contributions of extreme tests. Here the ratio of familiar to nonfamiliar tasks in unique prediction is 33 to 1. The direction of the discrepancy moreover is opposite from that indicated in Table 9. In addition, the over-all order in which we expected the patterns to account for TASC variance (test like, then reading, then familiar) was actually reversed. A revision in our thinking is apparently indicated. We discuss this in the section following.

Significance of the Study The first finding of significance is primarily methodological. While the sexes differed consistently and markedly in mean TASC score, there was no tendency for boys' scores to

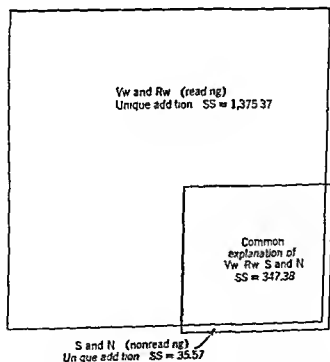


FIGURE 2 A comparison of reading with nonreading tests in accounting for TASC variance

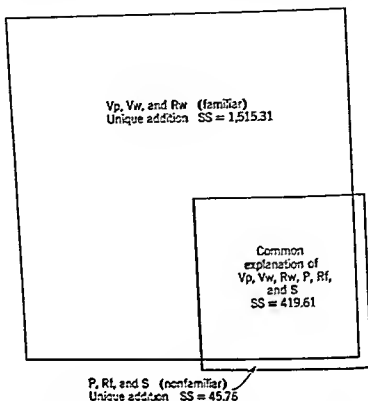


FIGURE 3. A comparison of familiar with nonfamiliar tests in accounting for TASC variance.

differ from girls' in the degree to which the PMA tests were related to TASC scores. This was true over-all and for the seven tests individually. If this result is generalizable to other populations, both theory and experimentation are granted a degree of simplicity of which otherwise they would unfortunately be deprived. Had there been sex differences in the patterns of PMA-TASC covariation, conceptualization of the effect of anxiety on performance would have become exceedingly complex.

A second result of importance is the finding of significantly different amounts of predictive power from one PMA test to another. This finding is in keeping with the previously discussed Zweibelson (1956) and Lighthall et al. studies (1959b) in their reports of the interaction of level of anxiety with type of mental ability test. The particular logical requirements and stimulus characteristics of the tasks which might give rise to such anxiety-task interactions was the subject to which the analysis of the PMA tests' covariance with TASC was addressed. Our thinking led us to consider three continua of test characteristics. The PMA were ranked along each continuum. Each con-

tinuum was ranked according to the degree to which we felt that it was valid, i.e., would account for variation in TASC scores. Let us consider first the results relative to the ranking of tests within continua. The tests employed to evaluate the validity of the test like and the reading requirements continua accounted for TASC variation in the direction predicted and indicated by the weights in Table 8. The six tests employed in the evaluation of the culturally familiar continuum yielded predictive powers altogether contrary to our expectations. While our thinking led us to expect that novel tasks (perceptual speed, figure grouping, and spatial relations) would arouse more anxiety, and therefore interference, than would tasks with which the pupils were familiar (the verbal tests), it was the familiar tasks that were associated with anxiety. Perhaps our thinking was too general and failed to distinguish between familiar tasks which were school oriented and familiar tasks which were not associated with or involved in school learning activities. Had the tasks on the culturally familiar continuum been spatial relations or perceptual tasks with familiar symbols, such as automobiles, houses, trees, etc., instead of the novel stimuli, geometric figures, our expectations might well have been more apropos. The difficulty here is one of confounding. *Rw*, for instance, a test requiring reading, is of course a culturally familiar task, and is also rather test like in its form. Perhaps the most significant aspect of this phase of the study was the uncovering of three promising variables. Of the three *a priori* arrangements of PMA tests, the extreme tests—those at the ends of the three continua—in all three turned out *a posteriori* to be far more significantly related to the TASC than the tests not at the ends of the three continua. This is strong evidence that the three arrangements are empirically meaningful. They deserve further scrutiny as variables in the arousal of test anxiety.

We are led now to discuss the results of the variance analyses presented graphically in Figures 1, 2, and 3. The question with which those analyses dealt was: Which of the three hypotheses—the test-like, the reading requirements, or the cultural familiarity—was best supported by the data? That is, which ordering of the PMA tests most closely resembled the order in which the tests actually "predicted" or accounted for variation in the scores on the TASC? We expected that the arranging of the tests according to their test likeness would be the best order, with alternative arrangements based on the degree of reading required and the degree to which the tests contained culturally familiar stimuli. The discussion of these results also must deal with the problem of confounding.

If on the basis of the results presented in the three figures we reject the notion that test likeness is as important as stimulus familiarity in arousing test anxiety, we may be hastily placing ourselves in error. The factor which produced the large overlap between the familiar tests and the TASC may indeed be *test likeness* working in combination with *reading requirements* of the Rv test, a test which figures heavily in all three continua. Together with similar factor interactions in Vw and Vp, the reading requirements or even the school-likeness of the test might produce what has appeared to be a large cultural familiarity factor explaining TASC variance. Owing to this confounding the significance of the results of evaluating the three continua comes down to what they suggest for future clarification rather than what they demonstrate.

More clearly than at the outset of the study it can be seen that in *dependent* appraisals of test likeness, cultural familiarity, and reading ability are needed so that we can know (a) how these factors relate to test anxiety in isolation and (b) how they combine to effect anxiety arousal.* It may have struck the reader as curious that N, the test of numerical ability, was not more closely associated with TASC scores than was found to be true. This becomes less of a curiosity when it is understood that this test is one of addition only, and that the pupils know from the start that it will contain nothing but problems of addition. We feel rather strongly that the patterns of TASC-PMA relationship would be altered considerably with a wider range of numerical problems. All in all, we have further evidence that characteristics of task stimuli affect the degree of test anxiety arousal. What we are not clear about is just what the relative evocative strength is of the various stimulus forms within the tasks. The present study could profitably be extended in three ways.

1. The same PMA tasks could be presented in two ways—as tests, with announcement of time limits, strict discipline in the classroom during the test, etc., and as games, with the word “test” omitted entirely and substituted by “game,” with no mention of time limit, etc.
2. Identical reasoning (logical grouping) tasks could be presented in both reading and oral forms, to evaluate the influence of reading requirements in the evocation of anxiety.
3. All nonreading (space, perception, figure grouping) tasks could be administered in two forms—one containing culturally familiar stimuli, the other novel stimuli.

* While it is clear that reading ability can never be appraised independently of cultural familiarity, it can be appraised independently of test likeness.

How does the study reflect on the validity of the construct, test anxiety, as incorporated into the TASC? While the results raise questions, particularly with regard to the problem of relationship of the individual PMA tests to TASC, there is also confirmation of some basic expectations. First of all, a significant relation is obtained between the several PMA tests, taken as a composite predictor, and the TASC. Second, each test separately, correlates negatively with the TASC, all but Rf and N statistically significant beyond the .01 level. And finally, there is a significant ($p < .05$) difference between the predictive powers of the strongest (Vw) and weakest (Rf) predictor of TASC variance, indicating that type of task has a differential effect on anxiety arousal.

The Negative Relationship between Intelligence and Test Anxiety
We can no longer postpone a discussion of the interpretation of the negative relation between test anxiety and performance on group tests of intelligence. What does this negative relationship reflect by way of causation? Does a deficiency in intellectual ability make for the increased level of anxiety, or does test anxiety interfere with intellectual performance? That there are instances of both types of effects in any sizable group of children can be taken for granted. But what is the predominant etiological factor which produces this negative relationship? Our expectations lead us to interpret the relationship as one in which test anxiety is the etologically significant factor. Let us consider some ways in which this issue can be viewed and then proceed to evaluate the empirical data relevant to these considerations.

What conditions would lead us to conclude that intelligence, not test anxiety, is the causative agent in the negative relation between the TASC and measures of intelligence? First, if intelligence related negatively and about equally to the TASC no matter what the measure of intelligence, then we would be disposed to conclude that intelligence was the significant factor. As we have stated previously, the "test situation" has certain cues which have, through painful experience in evaluative situations both at home and in school, become prepotent for the test anxious child. Test cues, and therefore test situations, can be seen on a continuum or gradient. Some cues (e.g., the word "test") are more distinctively associated with evaluative attempts on the part of authority figures than are others. These cues are present in greater or lesser number from one test situation to another, and these cues are present in varying strengths of prepotence and in varying numbers in different tests yielding intelligence scores or quotients. Some of these intelligence tests which vary in their test

likeness are the Stanford Binet, the Wechsler Intelligence Scale for Children, the Otis Beta, the Davis Eells, and the Porteus mazes. If all of these were related significantly (and not differentially) to the TASC, we would then conclude that the degree of test likeness (the intensity and number of test cues) was irrelevant and that the intellectual functions tapped by these various tests were the determinants in the negative test anxiety intellectual performance correlation.

If, on the other hand, the above intelligence tests correlated differentially with the TASC and the more test like intelligence tests correlated more highly than the less test like with the TASC, we would then have evidence that intelligence was not as relevant as test anxiety in determining the negative relationship in question (assuming of course, that these intelligence tests measured some common aspects of intelligence at least to a moderate degree).

There is a second line of argument which may help resolve the issue as to the etiological determinant of the negative relationship between the TASC and group tests of intelligence. This second argument rests on the use of matched subjects. If subjects are matched for intelligence, and if we assume intelligence as the causative factor in determining the level of test anxiety, we then should expect no differences in performance on, say, a learning task between high and low test anxious subjects matched for intelligence. In short, the argument runs, beyond whatever differences there may be in intelligence, differences in level of test anxiety are unimportant. As an illustration, consider the following example. A and B are subjects with equivalent intelligence test scores, but A has a high score on the TASC, B has a low score. The fact that A and B have different anxiety scores could be simply a matter of chance. However, the argument which posits intelligence as the determining factor in level of test anxiety also indicates that differences in test anxiety of equally intelligent children, as with A and B, are not related to performance on intellectual tasks. If intelligence has been controlled, the argument states, then real differences in test anxiety have also been controlled. While apparent differences in test anxiety score will occur, as with A and B, these will be due to chance and will not relate systematically to differences in intellectual functioning.

A third argument relating to the sources of the negative relation obtaining between the TASC and group tests of intelligence deals with the nature of the correlation itself. Perhaps this is less a distinct line of argument than an implication of the principal point at issue. When it is stated that the level of intelligence makes for the small but significant relationship between intelligence score and TASC, it is implied that the highly intelligent children experience little test anxiety

—that the relationship is due *primarily* to the low intelligence group. This type of claim would ordinarily be tested by inspection of the scatter plot of the relationship. However, since the correlation is only of the magnitude of $- .30$, the scatter plot does not reflect any clear-cut groupings of individuals. Hence this argument does not apply to these data.

A fourth and final argument concerns results of studies with populations homogeneous and superior with respect to intelligence. If a highly selected group of subjects could be obtained with high intelligence, then the correlation between test anxiety and intelligence would be expected to drop precipitously, assuming that a high level of intelligence yields a low level of anxiety.

To summarize the three relevant arguments

1. If test anxiety is not nearly as important as level of intelligence in producing the negative TASC IQ relationship, then various measures of intelligence, assumed to vary in their tendency to arouse anxiety, should relate to test anxiety similarly. Alternatively stated, this argument holds that the high anxious children will do poorly on each of several different kinds of intelligence tests, and that the low anxious children will perform well and equally well on each of several kinds of intelligence tests.

2. If intelligence is the dominant etiological factor in the negative TASC IQ relation, subjects equated in intelligence should not vary in performance on intellectual tasks in any way other than randomly and, specifically, should not vary according to their level of anxiety.

3. If test anxiety can be appraised in a group of intellectually superior subjects, the view that intelligence is the etologically significant factor in the negative relationship would lead one to expect that in such a group the correlation between test anxiety scores and intelligence would be of zero magnitude.

Review of Findings Related to the Negative TASC IQ Correlation
We shall review the data pertinent to the three arguments in order. The first argument concerned whether different but correlated measures of intelligence correlated differently with the TASC. We feel that the previously discussed studies by Zweibelson and by Lighthall et al. strongly support this first argument. Insofar as these studies illuminate the issue, they suggest that anxiety lowers performance on intelligence tests rather than being a consequence of lower intelligence. We can put the matter succinctly: test anxiety affects performance on group intelligence tests to the extent that the tests are saturated with test-like cues or attributes.

The second argument which we set forth to focus our discussion

was that if lower intelligence gave rise to anxiety in test situations, then subjects matched on intelligence would not differ with respect to performance on an intellectual task regardless of their score on the test anxiety questionnaire. Most of the next chapter is, in fact, concerned with just such studies. We might anticipate some of the conclusions drawn from those studies by stating that the results present difficulties for the interpretation that intelligence level is the etiologically significant factor in the negative correlation between TASC and intelligence. For example, in the study by Waite et al (1958), boys and girls of grades 2 through 5 who were in the upper and lower 25 per cent of the distribution on both the TASC and the GASC were separated from all other tested subjects. High anxious boys and girls were then matched with grade sex intelligence mates who were in the lowest 25 per cent of both the TASC and GASC distributions. Pairs were matched on intelligence scores derived from the Otis Beta group test. The task was one of paired associate learning, where the subjects were called upon to learn to associate a given number with a given geometric figure. The statistic of interest was the rate of learning of high versus low anxious subjects. As noted above, each high anxious subject was matched with a low anxious subject who was of like sex, grade, and intelligence. As expected, the low anxious group learned more rapidly than did the high anxious group. It therefore may be concluded that intelligence as measured by the Otis Beta was not enough to explain individual differences in the learning task. When intelligence was controlled by matching, there still were differences in learning rate—differences accounted for by anxiety level. While these results are not conclusive—there is far from a perfect relationship between performance on Otis Beta and on a paired associate learning task—they do present difficulties for the interpretation that intelligence level is the etiologically significant factor in the negative correlation between TASC and intelligence.

Using the same matched subjects as those employed by Waite et al (with eight additional matched pairs), Davidson (1959) investigated the differences between high anxious and low anxious subjects' grades in school. While no differences were found between high and low anxious girls, the low anxious boys showed a consistent tendency in social behavior, language, social studies, science, music, and work habits to be better than their high anxious mates. Over all, this tendency was significant at the .025 level of probability. It is again much more plausible to explain these differences in terms of anxiety than to assume that the matching of pairs on the Otis test had no effect and that the true factor operating was intelligence.

We now turn to the evidence relevant to the third argument in a group of intellectually superior students, the correlation between test anxiety score and intelligence would be expected to be of zero magnitude. Again, this view assumes that intelligence, not affective experiences in test situations is the etiologically determining factor in the negative relation obtained between scores on the TASC and group intelligence tests.

The data pertinent to this argument emanate from studies with college students. A test anxiety questionnaire developed out of the same rationale as that presented in the first chapters of this book was evolved by Mandler and Sarason (1952). The population these investigators had specifically in mind was the undergraduate student body of Yale College. This group is rather homogeneous in its intellectual level, there being a postwar average of between three and four boys turned away for every one accepted. Despite this homogeneity a correlation of $-.21$ was found between the test anxiety scale and the Henmon Nelson Test of Mental Ability, college level. Since this definitely superior group also demonstrated a negative relationship between degree of test anxiety and level of performance on this test we have one more datum indicating that intelligence level is not as plausible an explanation of the negative test anxiety intelligence correlation as is interfering affect in the test situation. These college men were veritably saturated with intelligence—a selected lot. When their scores on the Henmon Nelson can be explained in part by scores on an instrument designed to measure test anxiety, then level of intelligence ceases to be a very convincing explanation for the negative relationship obtaining between test anxiety and scores on group intelligence tests.

While the results presented do not separately reflect unequivocal support of the view that it is test anxiety and not intelligence level which makes for the negative TASC-IQ relationship, when one considers all the data together this view becomes considerably more convincing than that holding intelligence level as the determining factor in the negative correlation.

SOME CROSS-CULTURAL CONSIDERATIONS

The final study which we present in this chapter concerning the validity of the TASC, based on group-testing as contrasted to individual studies, has been carried out with British and American school children. The results are interesting in their own right, quite aside from their implications for our test anxiety scale. They throw some light, for

example, on the problem of student selection for education beyond the secondary level. The results of this study may be pertinent also to what appears to be an ever intensifying controversy over the advantages and disadvantages of state and national examinations. Whatever their general interest, the results bear substantially on the validity of the TASC.

National examinations in Great Britain are a central part of well established educational policy. At or near the completion of the fifth grade all children who attend state supported primary schools (a very small minority do not) are obliged to take a series of national examinations if they want further state support for secondary education leading to university entrance. Approximately 90 per cent of the school children take these "11+" examinations—so called because they are given just after the modal eleventh birthday of fifth graders. Those who score sufficiently high on the examinations are granted government support to attend "grammar" schools, institutions which offer an academic curriculum of pre university standard. Pupils who fall short of a given national standard are obliged to go on to "secondary modern" schools. While there are a few exceptions (some take the examinations a second time and pass, some few are allowed entrance to grammar school on the basis of outstanding performance not reflected in the 11+ examination), the vast majority failing these examinations go to secondary modern schools. Aside from the university preparation, graduation from grammar schools is generally held in higher esteem than graduation from secondary modern schools for at least two reasons. First, it is a mark of intellectual distinction (as indeed is entrance into grammar school). Second, it leads to occupational positions superior to those obtained by students leaving secondary modern schooling.

But there is another facet of British primary school policy which makes for an intense concern with tests and evaluation generally on the part of both parents and children. Its importance to an understanding of the climate built up around the 11+ examinations warrants extended treatment at this point. The practice referred to is that known as *streaming*, and takes place usually at the end of the second or third grade of primary school. Actually, streaming is nothing more or less than a particular kind of a homogeneous grouping. However, there are important differences between what has been known as "homogeneous grouping" in America and the practice of streaming in British primary schools. First, while homogeneous grouping has been advocated by American leaders of education, its adoption has been far from universal. The decentralization of educational policy has probably been the chief factor here, each local school system adopting practices to its

own liking. Second, where homogeneous grouping has been attempted in American schools, it has generally been in the secondary schools where the practice of allowing "electives" has tended to break down whatever lines (say between the "business" curriculum and the "academic" or college preparatory curriculum) there may have been. Homogeneous grouping in the American primary school (to the extent that one can say "the" American primary school) has tended to become subject matter oriented rather than classroom-oriented. That is, the practice of dividing the second grade classes, for example, into the "slow" and the "rapid" learners has tended to give way to grouping *within* classes on the basis of different learning areas, e.g., reading or arithmetic. Groups thus organized as to reading ability may have little overlap in pupil constituency with those grouped as to arithmetic ability. Hence, as far as the child's awareness is concerned, the ability lines tend to become vague and the curriculum varied.

Streaming stands in contrast to homogeneous grouping as it is seen in American schools. In addition, it is a much more formal and, for the child and his parents, a more *visible* process. Grades are divided into two or three groups according to teachers' judgments of dullness and brightness or according to achievement tests. Again, these tests have become current enough in the streaming to be labeled "7+" examinations. These streams are not within classrooms but are between classrooms, and those classrooms making up Stream A have a curriculum considerably more like that of the grammar school than are the curriculums of Streams B or C. Mobility from one stream to another is probably the exception rather than the rule,* and when it does

* P. E. Vernon has written an extremely sensible and sound article dealing with the whole issue of heterogeneous abilities and grouping strategy. In the course of his discussion he states, "homogeneous grouping by ability tends to stereotype those who were less able initially and freeze them at a lower level."

This is a very real problem in English elementary schools, where pupils may be classified by teachers as early as seven years old into those thought likely to pass or fail the eleven year examinations. Such classification, being based mainly on early progress in reading and number work, naturally gives a great advantage to children from middle-class families who are more likely to be helped and encouraged at home. Thus, a rather rigid system of selection may mean that the initially slow learners drop so far behind that they are, in effect, being condemned very early to an inferior schooling and a manual occupation for life. However, evidence indicates that such rigidity is the exception [in English primary schools] rather than the rule. "most primary schools now do retain a fair degree of flexibility of transfer from one stream to another, and a sufficient degree of overlapping between the curricula of the several streams" (Vernon, 1958).

As his reference, Vernon cites a study by Blandford (1958). Careful perusal, however, has failed to yield any mention of overlapping curriculums for the different streams, and only the following statement with regard to transferring from

occur there is, to all appearances, a definite sense of promotion or demotion in the child who is changing streams. After two or three years of the Stream A curriculum and teachers, a child is very much more likely to be able to pass the 11+ exams and be admitted to grammar school than his Stream B or C counterparts. Consider the figures presented in Table 10, representing streaming and subsequent placement.

TABLE 10
Streaming and Secondary School Placement

Stream	Placement		Comparative Opportunity
	Grammar	Modern	
A	64	44	64/108 * = .59
B	1	93	1/94 * = .01

* Ratio of grammar school placements to total number placed.

ment of fifth grade pupils in two schools of residential suburbs of London.

The comparative opportunities for pupils placed in different streams are quite divergent. While the pupils placed in Stream A had 59 chances in 100 of being admitted to grammar school, those in Stream B had but little more than 1 chance in 100. This sort of difference is so striking that it cannot escape notice of parents whose children's educational and economic future is being vitally affected. It is, therefore, more than likely that their children not only perceive their own standing but evaluate the standing with much the same effect that is felt by their parents.

It is with the experience of streaming and its consequent evaluative overtones that English children, such as those who acted as subjects in our investigation, anticipate the 11+ examination. The typical American pupil, in contrast, looks ahead to a progression of promotions from grade to grade, often without even as much as a final examination. The American pupils in the present study encountered no formal between-class grouping and few final examinations. Because of the dif-

stream to stream. "From correspondence received from the head teachers [school principals] some interesting points emerged. They were clearly of the opinion that streaming is the best way of catering to the different levels of ability, and were generally anxious to reallocate pupils wrongly streamed or those who were late developers. In practice the number of cases was found to be small" (italics added). It appears, then, that English primary school streaming generally has the characteristics which it was found to have in the two schools sampled in the present study.

ferences in pressures connected with pupil evaluation between the English and American group we assumed that the level of test anxiety of English children would be greater than that of American primary school children. The contrast existing between British and American educational policy afforded a valuable opportunity to obtain data on the validity of our test anxiety scale. It is clear that if the TASC appraises test anxiety, English school children should score higher than American children.

In contrast to differences between American and English pupils' experiences of homogeneous grouping and testing, no difference of comparable magnitude is experienced by the two groups which relates to non school or "general" anxiety. There is probably more pressure exerted on the typical English child to defer to adults and conform to standards set by authority figures than is true of the typical American child. This might well make for a greater frequency of adjustment problems in this particular regard in an English sample than one drawn from American school children. However, it could be argued that this relative lack of bounds placed upon American children is itself a source of insecurity which would produce as many difficulties for American children as those experienced by English children. In short, the differences in source of non school anxiety between the two cultures are not clear cut and do appear to balance. For this reason we would expect the differences anticipated in test anxiety not to be reflected in mean level of general anxiety.

The English American Study. Five hundred ninety seven American school children, drawn from grades 1 to 4 of six schools in Milford, Connecticut, and 533 English pupils from the same grades* in two state-supported schools in the Borough of Hendon served as the parent pool from which a random sample of 160 subjects for each country was drawn. Although we were fairly successful in matching our Hendon and Milford samples with regard to grades, sex and social class, it should be noted that certain differences in educational practice precluded a completely comparable matching. The English child, for example, tends to be exposed to the alphabet and to reading somewhat earlier than the American child. This exposure often occurs in Infant School when the child is four or five years old and attends the equivalent of the American kindergarten. In addition, the classroom atmosphere which the English child experiences is considerably more consciously "intellectual" and academic from the beginning than is typical.

* Since no data comparable to the fifth grade data in Hendon were available in Milford, we omitted the Hendon fifth graders from the analysis of this study. Details of procedure are set forth by Sarnoff et al. (1958).

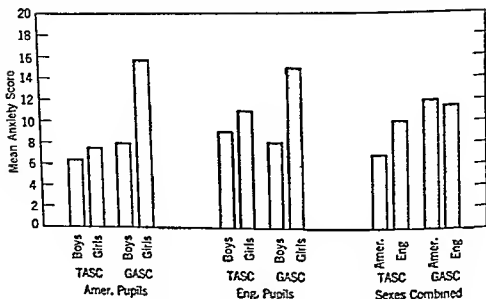


FIGURE 4. Comparison of American and English children on TASC and GASC.

of most classrooms in American primary schools. This general difference was quite true for the schools of Hendon and Milford employed in this study.

The results of the study which bear specifically on the over-all expectation that English pupils would have a higher level of test anxiety than comparable American pupils are presented in Figure 4, along with results concerning the level of general anxiety. As expected, the two groups differ in level of test anxiety and do not differ with respect to general anxiety. It is evident also that sex had a uniform effect on the TASC score for both countries, girls revealing higher test anxiety levels than boys. It is evident, also, that sex affects TASC score, uniformly, for children of both countries; while the influence of sex is revealed on both the TASC and CASC, the effect of sex is a good deal stronger on the CASC. These sex differences will receive more detailed attention in Chapter 9.

One further aspect of the results between countries might be noted here. Since the 11+ examinations are given in the fifth grade in England, it is reasonable to hypothesize that as that grade is approached test anxiety should increase. In general, moreover, tests given in the normal course of classroom activity appear to become both more numerous and more complex as grade level increases, and consequently it is to be supposed that each test becomes more affect-laden. We assume that for this reason alone test anxiety level should rise with grade. In England the increase of test anxiety level with grade should be

more sharply inclined than in the American sample because of the additional factor in England of the 11+ examination. Although there was a fairly marked tendency for the combined group means (both countries) to increase with grade (linear increase significant at .001 level), the two groups viewed separately do not show this trend. While the English means rise to the third grade and fall in the fourth, the American means fall from first to second grade and rise to the fourth. These contrasting trends (significantly different at the .01 level) vitiate the confirmation of expectancy which is apparently provided by the over all linear trend just mentioned. One must view cross sectional data such as these with a degree of caution, however, since the children acting as subjects at each grade level are different individuals from those of other grade levels and may have different characteristics which are not merely a function of grade level. As noted elsewhere (Sarnoff et al., 1958), the children making up the successive grade groups may well have experienced differing economic and postwar conditions—first graders, for example, growing up in a considerably more optimistic social and familial climate than that undergone by fourth graders who experienced more severely the effects of the immediate postwar austerity. Better data to test hypotheses regarding grade level would be provided by a longitudinal approach. However, there are also problems connected with repeated administrations of questionnaires such as the TASC and the GASC. These problems will occupy us in Appendix A.

CONCLUSIONS

The studies presented and discussed in this chapter are evaluated by us as supporting the following hypotheses explicitly or implicitly stated in Chapter 2:

1. In conventional tests of mental ability the performance of the test anxious child is interfered with primarily because such tests contain many cues which, so to speak, tell the child that he is in a situation of danger in that he is being evaluated by authority figures whose response to his failure will reduce the possibility of need gratification and arouse in him impulses toward these figures, the expression of which will create a still more dangerous situation for him.

2. In testing situations where such cues are minimal, the performance of the test anxious child will be interfered with little or not at all.

3. The greater the degree of anxiety experienced in test and test like

situations the greater the number of non test situations in which anxiety will be experienced

In saying that the above hypotheses have received support by the studies in this chapter we are, of course, at the same time maintaining that the anxiety scales, particularly the TASC, have an encouraging degree of validity. While some of the findings were not predicted (or contained in the discussion of hypotheses in Chapter 2), they nevertheless bear directly on the validity of the scales. For example, the findings of the cross cultural study suggest that the TASC reveals differences between cultures in which differing emphases on tests are found. Specifically, in a culture where test anxiety would be expected to reach great heights, particularly in the fifth grade in English schools, the TASC reflected this expectation clearly.

The studies presented in this chapter were viewed as first efforts in appraising the validity of the TASC and the status of some of our hypotheses. These studies exclusively employed group testing techniques. In the next chapter we focus on the individual testing situation and largely concern ourselves with hypotheses which we could not evaluate by the studies thus far presented.

Interfering and facilitating effects of anxiety

CHAPTER 7

It was on the basis of the encouraging results of the research reported in the previous chapter that we carried out a series of studies employing, in contrast to previous ones, the individual testing situation. Another difference between the studies in this and the previous chapter was that in all but one of the new series of studies we attempted to control as rigorously as possible the intelligence test scores of the individuals or groups being studied—a type of control which would shed light on the comparative importance of anxiety and IQ score in performance on problem solving tasks. It should be pointed out that in some of these studies we were just as interested in testing hypotheses relevant to personality as to problem solving variables. However, we shall reserve for a later chapter discussion of the evidence relevant to the “personality hypotheses” and concentrate here on problem solving. The first part of this chapter concerns the interfering effects of anxiety, the second part concerns facilitating effects.

INTERFERING EFFECTS

The Rorschach Study (Sarason et al., 1958b) All of the previous studies utilized tests which, although differing among themselves in several ways, had at least one indisputable thing in common: it was explicitly recognized by examiner and child that the answers which a child gave were either right or wrong. Even though the test may be presented as a “game,” e.g., the Davis Eells games, the child is required to give a “right” answer. The nature of the problem presented

to the child automatically restricts the range of possible answers which he is allowed to give. This is most clearly the case where the test format is of the multiple choice type. One, and only one, answer is permitted the child.

What if high anxious (HA) and low anxious (LA) children were put in a problem solving situation where more than one response was permitted to the stimulus and where they were instructed to respond in whatever way they wished, the examiner adopting a passive and non-directive role? In addition, what if the stimulus was completely or relatively unfamiliar, in contrast to such stimuli as words, numbers, geometric forms, etc.? It was in the light of these questions that we decided to employ the Rorschach. The Rorschach situation is one in which the child has to solve problems to which he has probably had no previous exposure, problems wherein the stimuli are completely or relatively unfamiliar. The child receives practically no help or direction from the examiner. The examiner's instructions are explicit, to be sure, but the child is still on his own since he has no idea of what is expected of him—he is told "there are no right or wrong answers, some people see this and some people see that." In short, the child is asked or required independently to solve the problem presented to him. Our expectations were that in such a situation the HA child would manifest more signs of interference and ineffectiveness in problem solving than would the LA child.

In this study we utilized 32 pairs of subjects matched for grade, sex, and IQ score. One member of the pair was in the top quartile of scores on the TASC and GASC (the HA subject), his mate was in the bottom quartile of scores of both scales. The method of administration employed was that described by Sarason (1954) and involves no questioning or prodding in the performance part of the test and very little questioning in the inquiry which follows. After the inquiry, for each response the child is given a piece of tracing paper and asked to trace the response "so that I see it just the way you see it."

As we indicated earlier, the Rorschach was used to test hypotheses relating to personality variables as well as to problem solving performance. The results which we present below bear directly on problem solving, and in a later chapter we shall return to this study in the course of discussing personality factors.

1 *Rejection of cards* It could be argued that the inability to respond at all to a Rorschach card is, in this situation, the most blatant indicator of interference in problem solving. In comparing HA and LA children in previous studies, test scores represented the number of

correct answers and we could not determine how frequently children were unable to respond at all to the problems. In other words, the differences which we previously reported between HA and LA children might not reflect the *degree of difficulty* which some children experienced in those problem solving situations. In the Rorschach situation we found that 13 of the 32 HA children rejected at least one card whereas there were only 6 such cases in the LA group ($p = .10$).

2. *Total number of responses* In view of the finding concerning card rejections, it would be expected that the HA subjects would have fewer responses than their LA mates. However, even when one excludes all cases rejecting at least one card, there is still a tendency for HA children to give fewer responses ($p = .10$) than their matched LA mates. In this type of problem solving situation, therefore, the HA subjects have a lower rate of responsiveness than the LA subjects, when they are able to respond at all.

3. *Minus responses* As important as the degree of responsiveness is the appropriateness of the response. If, as we hypothesized in Chapter 2, the HA child experiences anxiety in situations in which he cannot be dependent (i.e., he must depend completely on himself in decision-making or problem solving), we would expect, owing to our view of anxiety as a state in which dispassionate evaluation of the external environment is made difficult and frequently impossible that the appropriateness of his responses would suffer. As we hypothesized in Chapter 2, anxiety is a danger signal indicating not only some external danger but also the exacerbation of unconscious contents, the expression of which would present the child with a more dangerous situation. Given such a state, it is to be expected, therefore, that the child's response would reflect irrational elements more than they would rational ones. In the case of Rorschach responses this would mean that the content of responses of HA children in contrast to LA ones, would more frequently fail to "fit" the areas of the blots chosen for the responses. The results indicated that significantly more HA than LA subjects were above the median of the distribution of $F-/R$ scores ($p = .05$).

4. *Response to color* (chromatic, achromatic shading) If anxiety is an experience of heightened self awareness which interferes with awareness of the external situation, one would expect that in the Rorschach situation the HA children in contrast to the LA ones would tend not to incorporate in their responses some of the objective properties of the stimuli—the color and shading properties of the ink blots. The results have indicated that more HA than LA children were unable to respond to any of these properties ($p = .05$).

The above findings lead us to conclude that when given a problem solving task involving relatively unfamiliar stimuli, where the manner in which to respond is left almost entirely up to the subject, the HA child tends to reflect in his responses (when he is able to respond at all) illogical or irrational ways of thinking and these responses tend not to incorporate the obvious properties of the stimuli.

Human Figure Drawings (Fox et al, 1958) One might ask the question, "What do a child's drawings of people have to do with his intellectual functioning?" It is true that the problem posed by this task (or the Rorschach task) is quite unlike the usual intelligence test in many ways. However, if we look at drawings as problem solving tasks (presented to the child by an authority figure) in which a child is required to represent in an organized fashion on paper a complex set of internal responses involving visual, verbal, and motor elements, it is justifiable, if not necessary, to view this type of task as a problem solving one. That it is a problem solving task very unlike what is contained in more conventional tests was considered by us a virtue rather than a vice. It gave us the opportunity, with little expenditure of time,* to shed some light on the relation between anxiety and intellectual factors in a situation requiring a kind of self-directed or creative use of abilities.

We should make clear, however, that our primary purpose in studying figure drawings was in terms of testing certain hypotheses concerning anxiety and personality variables. This aspect of the study is taken up in Chapter 9. At this point we focus only on what the drawings suggest about differences between HA and LA children in utilization of ability.

Subjects and procedure Subjects consisted of three distinct samples drawn from 747 first through fourth grade children who had taken the anxiety questionnaires. Each of the first two samples which were used for exploratory work, consisted of those boys and girls from two randomly selected schools who were in approximately the upper and lower quartiles on the two anxiety scales. Each of these samples contained about 40 subjects. The third and final sample, for which results are reported here, consisted of the 32 pairs of subjects used in the previously referred to Rorschach study. Overlap between the three samples was avoided.

The drawings in the first sample were examined with no knowledge of the anxiety scores of the subjects and an attempt was made to judge

* Every child taking the TASC and GASC completes two human figure drawings in the interval between administration of the two scales. These were the drawings used in this study.

each child's set of drawings as HA or LA. Predictive accuracy was very poor. Following this, a list of about 20 variables of the drawings was drawn up which seemed likely to correlate with anxiety level. These variables were selected on the basis of theoretical expectations, reports in the literature, and careful examination of the drawings in sample I. Each set of drawings in sample I was scored on a two point scale for presence of each variable. Of the initial set of variables, nine seemed promising in discriminating between HA and LA subjects. The drawings in sample II were scored with respect to each of these nine variables and six discriminated significantly between HA and LA subjects. It was only at this point that sample III, consisting of the 32 matched pairs of children, was examined. The experimenter first made the judgment of HA or LA for each set of drawings on the basis of total clinical impression. With no knowledge of the accuracy of these predictions, she scored the drawings for each of the six variables that emerged from work with samples I and II.

Reliability of scoring was established by having another investigator, who had not previously worked with the drawings, score the drawings in sample II for the six discriminating variables. After sample II had been scored, the two scorers discussed disagreements and tried to clarify scoring criteria. Sample III was then scored by the second investigator. It should be noted that, with the exception of work with sample I, all judgments were made without knowing whether subjects were HA or LA.

Results The results reported here derive from work with sample III. The six variables which were scored and their definitions are as follows:

1 *Mutilation*—scored as present if one or more limbs or facial features (eyes, nose, mouth) were absent, or if either ears, hands, or feet were absent when they had been included in one of the two drawings. Thus, mutilation was scored if a child had drawn hands on one figure but not on the other. It was not scored if no hands were drawn at all. Mutilation was also scored if one or more limbs were *markedly* small compared to the rest of the body.

2 *Smile*—scored present if the corners of the mouths in both drawings turned upward or if the corners of the mouth in one of the drawings turned up and the other was ambiguous. Scored absent if both were ambiguous or if one or both turned down.

3 *Shading*—scored present if there was any blackening in of portions of the drawings. The one exception was hair, which was filled in by most of the children and therefore not scored.

4 *Arm position—down*—scored present if one or more arms made

less than a 45-degree angle with the body or turned in toward the body

5 *Rigidity*—scored present if the figures appeared rigid, unable to move, or likely to topple over if they did move.

6. *Playfulness—humor* (most subjective of the judgments)—scored present if a particular detail or some expressive stance of the figure communicated a kind of playful, humorous mood. (This was not the antithesis of rigidity since drawings scored as playful included some that were also scored rigid.)

The findings are summarized in Table 11. As we indicated above, the significance of these findings for hypotheses concerned with personality variables are fully discussed in Chapter 9. At this point we wish to express the opinion that these findings can be interpreted as indicating a difference between HA and LA children in a task requiring utilization of intellectual variables. Children who expressed little anxiety when answering our scales possessed a degree of freedom to become involved in a creative task in a pleasurable, expressive, and nonconstricted fashion. The figures they created are smiling. They are more than rigid, stiff creatures: they are humorous. The HA children, on the other hand, responded as if their accuracy, spontaneity, and expressiveness were interfered with, almost as if the task of figure drawing was more threatening and less pleasurable than for their LA peers. The figures they drew are not only more primitive, but they lack important parts of the body. In fact, one might say that their drawings tend to reflect a lack of critical judgment—a "minus quality" similar to that of their responses to the Rorschach ink blots

TABLE 11
Reliability of Scoring, and Differences between
HA and LA Children in Figure Drawing Variables*

Variable	Directional Difference	<i>p</i>	Scoring Reliability
Mutilation	HA > LA	< .02	.84
Smile	LA > HA	< .01	.86
Shading	LA girls > HA girls	< .02	.92
Arm position—down	HA boys > LA boys		
Rigidity	LA > HA	< .02	.89
Playfulness—humor	HA > LA	< .01	.79
	LA > HA	< .01	.77

* From Fox et al. (1958).

Experimental Learning Study (Waite et al, 1958) Of the 32 matched pairs of subjects 24 were used in this experimental learning study, which was designed to test some hypotheses derived from previous studies using college students as subjects. It was expected that LA children would do better in a learning situation than HA children, just as had been the case in the college population. Another objective of the study was the investigation of the effects of differential instructions (success failure and neutral) on HA and LA children. Here again our expectations were derived from the previous college studies in which LA subjects did best when given either success or failure instructions and the HA individuals performed best under neutral conditions.

The experimenter saw each of the 48 children individually. He of course did not know at the time which children were classified as high or low anxious.* After establishing rapport he asked the child to respond to a TAT card and then introduced the learning task by indicating that he and the child's teacher were interested in finding out how well the child could do in comparison with his classmates. The following task specific instructions were given:

Now, I have 12 cards here with a number and a figure on each. There's a different figure and a different number on each card. I'm going to show you the cards one at a time and I want you to try to remember the number that goes with each figure. When I've shown you all the cards once I'll give you a piece of paper with the figures on it and you try to write the correct number under each of the figures. Then I'll show you the cards again and ask you to write the numbers again. We'll do this six times in all so you'll have plenty of chances. O.K.?

The cards were presented at two second intervals and the subjects were given as much time as they needed to fill out the "answer sheets". During the experiment the experimenter pretended to correct the answer sheets and at the conclusion of the six trials he told one third of the subjects that they had done better than other children in their grade, one-third that they had done poorer than other children in their grade, and to the remaining subjects he said nothing about how they had fared. All subjects were then told that they would be given another set of six trials on a new task involving the same numbers but different figures. After the subjects had finished this second task the experimenter attempted to quell any anxieties about their performance by assuring the children that over all they had done quite well. He then escorted them back to their classrooms.

* In all the studies which we have done the person collecting or scoring the data was unaware of the anxiety status of the child.

The results were subjected to several statistical analyses. The most important finding was that, as expected, the LA children learned more, and learned faster, than did the HA children. This result was more striking in the second task than in the first. Furthermore, the boys contributed more to this finding than did the girls, although this result was not statistically significant. Our expectations of different performances on the second task by the different instruction (success, failure, and neutral) groups was not confirmed.

Although the differences in level of performance and rate of learning were in the predicted direction in the first task, these differences were not great enough to achieve statistical significance. One explanation is that while the first task was quite similar to the second in terms of general format, the figures in the first task were more similar to one another than in the second task. This, along with the simple fact that the first task came first in order of presentation, may have made it more difficult than the second task for all the children. The effect of these two factors might have been a general depression of *all* scores, lessening the possibility of large differences between the two anxiety groups.

An alternative explanation involves looking at the effect of the success, failure, and neutral instructions in a manner different from that dictated by our expectations. Perhaps it was the case that any statement by the experimenter which mentioned another task cued off different reactions in the two anxiety groups. It could be that the effect of these references to another task served to disorganize the HA children to a degree where their later performance was affected. This explanation, however, must remain a hypothesis since the study provided no information as to its veracity.

Summary of the Three Studies In each of the studies thus far discussed, involving the same subjects, we have found that the child who scored high on the anxiety scales manifested greater interference in problem solving than his peer who scored low *despite the fact that both scored the same on an intelligence test*. We emphasize the similarity in IQ score because these studies were in part undertaken in an attempt to resolve the question raised and discussed in the previous chapter: Is the anxiety a function of the IQ level or does it have dynamics relatively independent of IQ level? The studies presented in this chapter support the contention that anxiety is not a consequence of IQ level. The 32 matched pairs of subjects ranged from the low average to bright levels of intelligence. None of our findings was a result of the lower IQ subjects' performance. The types of interference we noted appear at all levels of intelligence within the HA group.

There are two factors common to the three studies which should be

mentioned here not only because they bear on our thinking about anxiety, particularly test anxiety but also because they set the stage so to speak, for the studies to follow which concern the facilitating effects of anxiety. The first factor is that in each of these situations the child perceives himself as being evaluated in some way or other. For example, a strange adult enters the classroom and with the permission of the teacher proceeds to ask questions of the children. At one point he asks them to draw pictures. The school child is not likely to think that this stranger is asking him to draw pictures "just for fun" he must be going to look at them at least and he may grade them. As for the Rorschach and the learning study in both cases a strange adult enters the classroom confers with the teacher and then asks one of the children to go with him. Why should this happen unless the adult is going to evaluate him in some way, for example test his eyes or ears, or find out how smart he is? It is the evaluation factor which we consider as a necessary (but not sufficient) condition for the arousal of anxiety in those children predisposed to respond in this manner.

As important as perceived evaluation by the child is the second factor which the three studies have in common the rejection by the examiner of any attempt by the child to establish a dependent relationship with him. In the figure drawing he is told to draw in any way he pleases. In both the Rorschach and the learning studies the testers adhere to a strict pattern of behavior which does not allow them to help the child in any way, or to answer the child's inquiries in a way which would make the insecure dependent child any more comfortable. It was our hypothesis as discussed in Chapter 2, that the HA child experiences most difficulty in the evaluative problem solving situation in which his strong dependency needs will apparently not be gratified. In such a child the evaluative factor acts as an initial cue for the arousal of anxiety, and the knowledge that he cannot depend on the evaluator for the gratification of his needs has the effect of increasing the strength of the anxiety. We interpret the findings of the three different test like situations discussed above as supporting this hypothesis.

FACILITATING EFFECTS

It was primarily as a result of our conceptions about the relationship between anxiety and dependency that we were able to describe the conditions under which the HA child would experience little or no interference in problem solving. We felt that we had obtained strong

support for the hypothesis that the test like or evaluative factor was important in determining the level of performance of the HA child. However, in the light of our thinking about anxiety and dependency we were greatly interested in attempting to study the role of dependency in problem solving in clearly test like, evaluative situations. The question in which we were specifically interested was whether the performance of the HA child would vary as a function of the degree to which the external situation gratified dependency needs.

The first study (Ruebush, 1960) we take up was not designed to investigate the dependency factor. It was only after the initial results indicated that HA subjects did better than LA subjects that we examined the nature of the situation in terms of the dependency factor, developed a measure for its evaluation, and carried out various analyses which supported our conceptions. The results of this inquiry served as a basis for predictions in the second study (Waite, 1959), which has not been published and therefore is presented in some detail.

Embedded Figures Study The Witkin Embedded Figures Test consists of showing the subject a drawing of a figure, and after removing this figure asking him to find it in a more complex drawing. Although the test is timed, the subject is allowed to look at the simple figure as often as he likes and the time spent in doing so is not included in his score. Furthermore, if he makes a mistake he is allowed to continue searching for the simple figure in the more complicated one, although the time spent in making the mistake is counted towards his score.

In setting up the design of the study we attempted to "control for intelligence" in a way different from the matching procedures used in the previous studies. Here we divided the subjects into three groups according to their IQ scores. Both the high and low anxiety groups had the same number of children in the high, medium, and low intelligence groups. We hoped that this "levels" approach to the question of the interaction between anxiety and intelligence would provide further evidence on the relationship between anxiety and intelligence level.

The items of the embedded figure test vary as to the complexity of the design. Thus, we were able to study the relationship between anxiety and task difficulty. One half of the subjects were given the difficult figures first, the other half the easier figures first. Our interest in this aspect of the study stemmed from our contention that qualitative differences in type of task, as well as differences in instructions and various personality and intellectual correlates, are much more important variables in determining the effect of anxiety in a particular situation than simply qualitative differences in stimulus complexity or

difficulty. Other researchers (Cristeneda et al. 1956b) concentrate on what they term the "drive aspect" of anxiety and show that in accordance with their drive theory, HA subjects in their studies do better than LA subjects on easy motor learning tasks and poorer on difficult motor learning tasks. We submit however, that this relationship holds only under certain qualitative conditions.

The children for this study were selected from the 280 boys in the sixth grade in Hamden, Connecticut. Sixth graders were selected because previous studies (Witkin et al. 1954) had shown that the embedded figures task was suitable for this age group. The Otis Beta intelligence test had been administered to these children prior to the beginning of the study and the assigning of subjects to the three levels of intelligence was done on the basis of these scores. Scores of 89-100 were termed "low," those from 101-110 were termed "medium" and those from 111-122 were called "high." Subjects were termed HA if their test anxiety score fell in the upper quartile of the distribution of TASC scores. Similarly, LA subjects were those whose scores fell in the lower quartile. Utilizing a table of random numbers, eight subjects were selected randomly from each of the six anxiety IQ groups, and then each of these groups was split into two groups of four subjects, one of which received the easy items first and the other the more difficult ones first. The children thus selected were seen individually in the schools, all by the same examiner. The examiner did not know which children were in which anxiety or IQ group.

The results were scored in two ways: the total number of figures solved by each child and the amount of time it took him to do so. The analysis of the results showed that in general the HA children did better in terms of the two scores than did the LA children, but that this superiority was limited to those children in the middle and low intelligence groups. At the high intelligence level the LA subjects did slightly better than the HA subjects, although not enough better to reach statistical significance. We found no indication that the various anxiety groups performed differently when given a hard or an easy item.

One of the most fruitful aspects of this study was the result of an attempt to determine why the HA children had performed so well on this particular task. A brief review of the task will help in demonstrating the reasoning which led up to our use of a score which we term the "cautiousness index." The instructions preceding the criterion task included statements that the child could request to see the original (simple) figure as often as he liked and without penalty (he was told the stop watch would be stopped while he looked). In addition,

he was told that guessing was permitted and would not count against him (although he was not told that the stop watch would be stopped during a guess). He was also told that if he made a "wrong" guess he would be so informed and could then continue his search for the embedded figure. The content of these instructions, in contrast to those of the Rorschach, communicates to the child that the examiner will help him in several ways if the child requests help. One might say that the task is structured so that a cautious approach in which the subject makes sure that he knows the correct response *before* he makes a guess will be rewarded by success (since the watch continues running during guesses). Put in another way, the situation is such that the child who is dependent and cautious is not penalized—if anything, these characteristics work in his favor.

The ratio of number of requests to see the simple figure to number of "wrong" guesses was computed for each subject. This ratio is relatively independent of latency since it was possible for the subject to obtain high or low ratios regardless of the amount of time he took to solve the figures. The subject who obtains a high ratio score is one who asks to see the simple figure many times before he will venture a guess, and although there are elements of both dependency and cautiousness involved in this sort of behavior, we have labeled the ratio score the cautiousness index both for reasons of convenience and because we believe that the term "cautiousness" provides a somewhat more accurate description of the variable under study than does the term "dependency."

It should be emphasized that our focus on cautiousness was a function of our Rorschach findings as well as theoretical expectations discussed in Chapter 2. Much of the behavioral data in the Rorschach study suggested that HA children (particularly boys) were more dependent upon the examiner and insecure than their LA counterparts. It was our feeling that the embedded figures task was one where dependent, cautious behavior would not be damaging, but could be helpful.

The results of the analyses confirmed our expectations. The HA children achieved significantly higher scores on the cautiousness index than did the LA children. There was no evidence that "high cautiousness" was associated more with one level of intelligence than any other level. To further demonstrate the importance of being cautious in solving the items of the test, we decided to define the cautious subject as one with an index equal to or greater than 2.0, since there was a definite break in the total distribution of cautious-

ness scores between the 17 subjects at 2.0 or above and the 31 subjects below 2.0. According to this criterion, there were 11 HA and 6 LA children defined as being cautious. An analysis of the data showed that in both anxiety groups the cautious individuals solved more figures than did the noncautious children. Statistically, this result was very significant ($p < .001$). Furthermore, inspection of the data revealed that the performance of the 11 HA cautious subjects did not differ appreciably from that of the 6 LA cautious subjects, nor did the performance of the 13 HA noncautious subjects differ appreciably from that of the 18 LA noncautious subjects. Finally, a statistical analysis showed that the 17 cautious subjects (from both anxiety groups) solved more figures in less time than the 31 noncautious children.

We considered the findings of this study to be among the most important that we had made thus far in our research. They confirmed our thesis that there are qualitative aspects of testing situations which are at least as important as, if not more important than, mere quantitative characteristics because they enable certain personality factors to operate to the advantage or disadvantage of the person taking the test. Some tests have characteristics which allow certain defensive behaviors to be used advantageously and thus these behaviors facilitate performance. Other characteristics of tests would tend to come into conflict with these same defensive tendencies and result in an interference with performance. It would seem that in order to effectively predict performance on a given test, we must have information relevant not only to the personality structure of the person taking the test, but also information concerning qualitative characteristics of the test which could interact with the personality structure.

The Stroop and Porteus Maze Tests (Waite, 1959). This study was initiated at about the same time as the previous one by Ruebusch. It had the following three aims:

1. In the earlier study by Waite et al. (1958) discussed in the first part of this chapter, the results from the learning task (while significant) were not as clear-cut as we had hoped. We speculated that a contributing factor was in the nature of the stimulus task. The Stroop test seemed desirable to use in a further study because the subject is clearly under pressure and is continuously confronted with choice points in the process of doing the task. The Porteus mazes were used in addition because they also confront the child with choice points but under far less pressure than in the Stroop situation. If,

as we initially expected, the LA groups were superior to HA groups in both tasks, it would certainly broaden the generality of our findings*.

2 Does the use of an anxiety questionnaire, the content of which is solely concerned with test and test like situations, enable us to make better predictions about test performance than a scale which deals with anxiety in a variety of "non test" situations? In the previous chapter we presented evidence that the TASC tended to predict IQ scores better than GASC. However, the nature of those studies was such as to provide no information regarding the relative predictive powers of the two scales when used by themselves.

In order to provide a better comparison of the TASC with other anxiety scales, we decided to use three groups of subjects. The first group would be divided into high and low anxiety groups on the basis of their scores on the TASC, and the second group would be divided on the basis of their scores on the GASC. The third group was to be divided on the basis of scores on another anxiety scale, the Children's Manifest Anxiety Scale, or CMAS. We decided to use this third group for two reasons. First, we had done some work with the CMAS in our studies of lie scales (see Chapter 5), second, by including two "general" anxiety scales we felt that any results concerning the relative predictive powers of our TASC and scales not dealing exclusively with tests would have greater generality.

3 A third aim was to determine whether or not the differences between the two sexes in terms of performance which were suggested by the learning study data (see p 166) was a stable finding. On the basis of those previous results it was expected that the differences between the LA and HA children would be found to be greater among the male than among the female children.

It is appropriate at this point to describe the Stroop test and its administration as used in this study. There are three parts to it. First, the subject is presented with a large card on which there are 100 small rectangles colored one of four colors. He is asked to name the color of each rectangle, going as fast as he can until he has named all of them. The second part of the test consists of the subject reading the names of the four colors from a card which contains their names printed in black 100 times. Finally in the third part he is given a

* We are presenting our thinking in the way in which we actually thought at the time the study was being formulated. In the midst of data collection Ruebush's study was completed and as a result of his findings we recast the hypotheses of the present study. We elaborate on this later in the chapter.

similar card on which the names of the four colors are written 100 times, but this time the ink in which they are printed is of a hue different from that described by the word. The subject is asked to say the name of the color in which each word is printed as fast as he can. The usual scoring system is the amount of time it takes the subject to do the third task in comparison to the amount of time needed on the first two tasks. In the present study we also kept track of the errors the children made on the third task by recording their performances on tape.

Each child was seen individually in the public schools. The examiner took the child from his classroom, showed him the tape recorder, and recorded a brief conversation with the child, including information such as his age and the name of his teacher. The recording was then played back to the child, after which the Stroop test was introduced with the following instructions:

Today I am going to give you two tests. The first one has three parts to it, and has to do with color. The first part goes like this: [The examiner then handed the first card to the subject.] I want you to tell me the name of the color on each of these little blocks as fast as you can. Start here [pointing to the first block], and keep going until you have done all of them. Go as fast as you can. [At this point the examiner picked up the stop watch which had been lying on the table in view of the subject.] Ready, go.

After the subject finished the first part, the second part was introduced in a similar manner. When the pupil had finished reading the names of the colors, the third part was introduced as follows:

Now this part is a little bit different. What I want you to do on this one [producing the third card] is to tell me the name of the color in which the word is written. For example, this one was written with a green pencil, so you would say green. Understand? Now start here and do these for practice. [After the child had finished the practice series, the examiner continued the instructions.] Now, begin up here and go as fast as you can. If you make a mistake, be sure and correct yourself. For example, if you said "green" for this one that would be wrong, so you would correct yourself by saying "green, I mean blue." Right? O.K., you begin here [pointing], and go as fast as you can until you have done them all. Remember if you make a mistake, correct yourself, and be sure not to skip any. Ready, go.

While the child was doing the Stroop test the examiner noted all the errors that the subject made, dividing them into four categories: (S) partial incorrect responses or slips of the tongue; (C) corrected incorrect responses; (U) uncorrected incorrect responses; and (X) errors where the subject skipped one or more of the stimuli. The examiner also noted the total time it took the child to complete each part of the test.

When the Stroop test was finished, the examiner shut off the tape recorder, put the watch away, and introduced the Porteus mazes

That's the end of the first test. The second test has nothing to do with color. We don't need the tape recorder, and we don't need the watch, because this is *not a time test*.

The standard instructions for the Porteus test (Porteus, 1933) were then given and the child went through the test. The fact that the test was not timed was re-emphasized just before the child began the first maze.

In using the Porteus we were not so much interested in the measurement of intelligence with this instrument as we were in a qualitative score which Porteus (1942) had devised some years ago. In speaking of performance on the maze test, Porteus says

Two individuals may earn the same quantitative scores, but the style or quality of performance may differ widely. In finding the way out of the Maze, the only overt activity is drawing between two guide lines under very simple conditions. According to the given instructions, lines must not be crossed nor the pencil lifted from the paper. The subject does not know that he is being tested for careful and exact execution. His attention is, therefore, in the main directed towards the avoidance of traps, and since nothing has been said about the quality of his drawing, habits of slovenliness, impulsiveness, haphazard work are given an opportunity to show themselves.

It is when the guard is let down that the real self appears. The extent to which we unknowingly betray ourselves is one of the most surprising things in clinical practice (Porteus, 1942, pp. 11-12).

The word which perhaps best fits the trait measured by the qualitative score is impulsiveness. Porteus cites several studies which demonstrated that delinquent children (presumably more impulsive than their peers) score higher on the qualitative scale than other children. Moreover, Janoff (1951) has shown a relationship between qualitative score and form quality on the Rorschach test.

The subjects used in the present study were 120 children, divided evenly between the sexes, who were in the fifth grade in the Hamden school system. We restricted ourselves to the one grade in order to avoid complications arising from possible effects of grade in our analysis of the results. We could not match subjects for IQ score because the practical difficulties involved were immense. For example, when we were selecting subjects for the Rorschach, learning, and parental interview (Chapter 8) studies we experienced tremendous difficulties in very closely matching 32 HA-LA pairs even though we had over 700 cases from which to draw. In order to match on IQ score in the present study we would have had to find, not pairs but sextets of subjects because we were using three anxiety scales and both sexes

To do this with any precision would have been impossible. In addition to the practical difficulties there were two considerations which suggested that matching on IQ score was perhaps not crucial. Preliminary testing with the Stroop suggested that its scores were relatively independent of IQ score. As for the mazes, Porteus (1942) reported that the correlation between qualitative score and IQ approximates .37, a moderate degree of relationship. Leaving these considerations aside, we would have been hard put to justify the use of a particular intelligence test in the light of the findings presented in the previous chapter indicating that the relationship between anxiety scores and intelligence test scores was far from a simple one.

The design of this study, therefore, was a 2 (anxiety) by 2 (sex) by 3 (anxiety scale) design, with 10 subjects per cell, or a total of 120 subjects. These children were given the Stroop test, followed by the Porteus maze test, by a single examiner in individual sessions. The high and low anxiety groups were selected from the upper and lower quartiles of the distributions of each of the anxiety scales. We intended to analyze the data from each of the tasks separately, with the following hypotheses in mind:

- 1 The HA children, in contrast to LA ones, would take longer to complete the third, or criterion, part of the Stroop test, relative to their performance on the first two parts of the test. Furthermore, they would make more errors on the third part of the test.

- 2 The HA children would achieve higher qualitative scores (poorer performance) on the Porteus maze test than their LA counterparts.

- 3 These hypotheses would receive greater confirmation within the groups of subjects chosen on the basis of the TASC than within the other two scale groups.

- 4 On the basis of the Rorschach study, behavioral notes and the learning study, it was predicted that hypotheses 1 and 2 would receive greater confirmation among male subjects than among female subjects.

Revised Hypotheses The children in this study were seen in the spring of 1958. Before data collection was finished the embedded figures study was concluded and the results analyzed and interpreted. The results of that study forced us to re-examine our hypotheses about how the HA child would fare with the Porteus mazes. As mentioned earlier, the Porteus is unlike the Stroop test with respect to the amount of pressure under which the child functions. By pressure we mean several things, chief among them the use of time as a criterion of performance. As in the embedded figures test, when taking the Stroop

test or the maze test the child is able to "check" his performance as he goes along i.e., he can tell when he makes a mistake. But in the Stroop test a mistake counts heavily against him, since he "loses time" in correcting his mistakes. Therefore any mistake means an "error" in the classical sense as well as a poorer score due to the time factor. The Porteus mazes are much like the embedded figures in that the child can correct covert mistakes without showing them overtly merely by looking ahead and engaging in vicarious trial-and-error activity at the choice points of a given maze. He is under no pressure to hurry and as a result the more cautious he is the better he will do. We can put this in another way by telling the child that time is no factor and by encouraging him to feel free to take his time, the examiner is more likely to be perceived by the child as supportive rather than restrictive, supportive rather than impersonally demanding. In addition, the child can learn that if he makes a mistake on a maze, the examiner will give him another opportunity to perform under the same conditions—on some mazes he is allowed as many as four trials. It was this apparent similarity between some of the qualitative aspects of the embedded figures and the Porteus mazes which forced us to revise some of our predictions about how HA and LA children would perform on the mazes.

The results of the embedded figures study actually cast the design of the present study in a different light. The findings concerning the cautiousness of HA children were considered to be important enough to make the comparison of the way in which the subjects performed on the color naming task with their maze performance the central part of the study. We therefore reformulated all of our predictions as follows:

1. While the LA children would be expected to do better than the HA children on the Stroop test, the relative positions of the two groups in terms of qualitative scores would be reversed in the Porteus mazes with the HA children doing better.
2. The first hypothesis will receive greater confirmation within the group of subjects chosen on the basis of TASC scores than within the other two scale groups.
3. The first hypothesis will receive greater confirmation among male subjects than among female subjects.

Scoring. The Stroop test was scored in several different ways. We used time in seconds as one measure i.e., the amount of time it took a child to complete the third task of the color naming test. Another time score we tried was the one proposed by Lazarus (1957) and

used by him in studies employing college students as subjects. This is a ratio score defined as the difference between the time needed to complete the third task and the time spent on the first task (naming the blocks of colors), divided by the time spent on the first task. This ratio score has the advantage of at least partially taking into account differences among subjects in their initial ability to name colors, so that the score is a better reflection of the difficulty subjects have with the competing responses set up by the third task. Of course, a ratio score cannot wholly dispose of the effects of initial color naming ability but it is a step in that direction.

A second type of score used with the Stroop in this study was the number of errors made by each subject in the third task. With practice we found that we could score types of errors with good reliability, although it might be noted that without having used the tape recorder we probably would have been unable to do so, since the tapes enabled us to gain this practice. Two error scores were computed for each subject. The first was the simple total of all errors made by the child. The second was a weighted score using the system (described on p. 173) in which all errors were divided into four categories: "S" errors were given a weight of 1, "C" errors were assigned a weight of 2 and "U" and "X" errors were weighted by 3. These weighted scores were then added up for each subject to give a total weighted score. The rationale for this weighting scheme was based on the opinion that the second type of error indicated less control on the part of the subject than did the first, and that the third indicated even weaker control than the second.

In scoring the mazes, we were guided by the directions Porteus (1942) gives in his publication concerning the qualitative scoring of the mazes. We did not use the "wavy line" variable because of the difficulty in obtaining reliable scores, although we did follow Porteus' weighting procedure for the remainder of the variables. In a reliability check two raters scored the same records and obtained a reliability coefficient of .94, indicating that the scoring was reliable. In addition to the Porteus Qualitative Error scores, we computed another score for each subject. This was what we called the error ratio score and was obtained by dividing the Total Qualitative Error score by the total number of trials the subject had on all mazes. The number of trials a subject has in this test can vary considerably. He is allowed up to four trials on many of the mazes, and two trials on the others, until he successfully completes the maze. If he fails two mazes in succession, he is not allowed to attempt any of the more difficult mazes. The Total Qualitative Error score, being a sum of all the qual-

itative errors made on the entire test, should tend to vary in accordance with the number of trials the subject takes. At least one could say that a subject who needed 20 trials had a greater opportunity to achieve a higher total error score than another subject who attempted only ten trials. We therefore used the error ratio score in an attempt to take this condition into consideration. From the Porteus maze data we also computed Test Quotients for each child, using the standard computational procedures proposed by Porteus. This Test Quotient is a kind of intelligence measure, much like the popular IQ, and is actually a ratio score obtained by dividing the subject's test score by his age.

Results The results of this study and their implications are presented in the following order. First we examine the findings obtained from the Stroop test, discussing the analysis of the various time and error scores. Then we present and discuss the analyses of variance which were carried out using data from both the color naming and the maze tests. The design basic to these analyses is what has often been called the repeated measurements design in which one analysis can be carried out for data which include two or more different measures obtained from the same subjects. These analyses contain the main body of the results and represent the data most pertinent to our prediction that the performance of HA children, relative to that of LA children, depends upon the type of task presented to them. Finally, we discuss some supplementary achievement test data obtained outside the procedures outlined for this study but which could be compared with the Porteus Test Quotient data in a way which is relevant to our predictions.

THE STROOP TEST The first analysis involved the time scores on the Stroop test. It was here that we had expected the greatest differences between the two anxiety groups, since the Stroop test is one which puts the child under intense time pressure at the same time that it requires him to suppress the dominant responses to stimuli. Initially it appeared that in the data there was not the slightest bit of support for our predictions. The variability of time scores was great for both groups and the mean score of each group was identical. This result held in all three scale groups. In other words, whatever the anxiety scale used to determine the children's anxiety status, the HA child did no better or worse than the LA child. We tried to use the various types of time scores—total times, ratio scores, difference scores—but all produced the same negative findings.

After the analysis of the time scores, our next step was to score each child's responses in terms of the number and types of errors he made.

The tape recordings were used in the scoring process and this time the results did not appear to be as unfavorable for our predictions. It was apparent that there were differences between the HA and LA groups, LA subjects making fewer errors. These differences between groups were evident in all three scale groups and existed regardless of whether or not the error scores were weighted.

An interesting question arose when these results were considered in light of the lack of differences in time scores. Why was it that despite the fact that the HA children made more errors they took no longer to complete the color naming task than the LA children did? Whenever a child makes one of the more common types of errors, i.e., an error in which he says the incorrect response in partial or complete form before giving the correct response, he should be using up more time than he would have done if he had made no error at all. Thus, the time score of the child who makes a lot of errors should be greater than that of the child who makes only a few errors. One possible explanation for the similarity of time scores despite the differences in errors is that the HA children made errors of the third type more often than the LA children. This type of error, where the child gives the incorrect response and does not correct himself, or where he skips a response entirely, would not add to his time score and, in the case of skipping, should lower his time score. However, inspection of the data did not indicate that the HA children made enough more errors of the third type to completely explain the seemingly paradoxical results. Furthermore, the observations of the children made by the examiner raised doubt as to the real effects of skips and incorrect responses which are not corrected on time scores. It was observed in many cases that after a child made one of these errors he would pause momentarily as if he realized that he had made a mistake but could not figure out what it was. Of course such anecdotal information cannot be systematically analyzed but it does cast some doubt on the adequacy of the proposed explanation.

Another possible explanation, one which is both more simple and more hypothetical than the previous one, assumes that in making more errors than the LA students during the same amount of time, the HA children were actually proceeding at a higher rate of speed. This must have been the case since they were making more vocalizations per unit of time. From this point of view it would seem as if the HA children were "working harder" at the task, were under more pressure to complete it in as short a time as possible and because of their desire to hurry they made more errors. This explanation might be called a motivational one. The children were more motivated to

comply with the instructions having to do with speed and were unable to pace themselves in order to make a minimum of mistakes. One fact which might at first appear to argue against this explanation is that there were no differences between the time scores of the HA and LA groups on the first two tasks of the color naming test where the number of errors was too small to have much of an effect on time scores. This would seem to indicate that the HA children were not motivated to a greater extent than the LA children. However, it might be argued that it was only in the third task of the color naming test that the instructions and the nature of the task were of a nature to bring about the differences in number of errors and in speed. Perhaps the first two tasks were "easy" enough so that the HA children did not experience any pressure, so to speak. As we have mentioned these are only speculations for which we have little or no empirical support. The results do emphasize, however, the complexities which can occur even when one uses a seemingly simple test like color naming where the responses available to the subject are fairly well defined.

THE ANALYSIS OF THE DATA FROM BOTH TASKS Since our revised predictions about the way in which the high and low anxiety groups would perform on the two tasks indicated that performance would be a function of the characteristics of the individual tasks as well as anxiety, we chose the repeated measurements analysis of variance design for our statistical analysis of the results. This design is one in which we could include data from both tasks and which lets us compare the subject's performance on the mazes with that on the Stroop test.

The scores we used in the analysis were standard scores. These scores are derived from the raw scores and indicate a subject's performance relative to the performances of all the other subjects on a given task. Standard scores were computed for both tasks so that we could compare a subject's performance on the mazes with that on the color naming test. It should be remembered that when we computed raw scores we used several different methods for each task. We took both weighted and unweighted scores on the Stroop test, and total error scores and ratio scores on the mazes. The first analysis of variance which we carried out utilized weighted scores on the color naming test and total error scores on the Porteus test as raw scores. Four variables entered into the analysis: anxiety (2 groups), sex (2 groups), scale (3 anxiety scales), and task (2 tasks). No overall difference was found between the two anxiety groups. This result was as we had expected since we had predicted that one anxiety group would do better on one task, and the other group would do better

on the second task. One would, therefore, not expect an over all difference between the two groups, since their relative performance on the two tasks would tend to cancel each other out. We did expect that the task-by-anxiety interaction would be significant, however, in line with the above prediction. The interaction, presented graphically in Figure 5, was significant at the .05 level of confidence. Figure 5 shows that the LA group did better on the Stroop test, making fewer errors than the HA group did, whereas the HA group did better on the maze test, making fewer errors than did the LA group.

However, the test-by-anxiety interaction was not the only aspect of the analysis of variance which turned out to be significant. The main effect of the scale variable was significant at the .05 level of confidence, indicating that there was a difference in performance between children selected on the basis of their scores on one anxiety scale and those children selected on the basis of another anxiety scale. Furthermore, the results indicate that this difference existed regardless of anxiety level, and regardless of which task (color naming or mazes) was involved, since none of the interactions between the scale variable and the other variables approached significance.

In Figure 6 we present the scale-by-task-by-anxiety interaction graphically, so that the reader can better understand the nature of the results. It can be seen that both the HA and LA children who were selected on the basis of the Iowa CMAS made fewer errors than those children who took the other two anxiety scales. In fact, they made fewer errors on both tasks used in the study. The first possible explanation of this result is that the children in the CMAS group were more intelligent than those in the other group. The IQ data which we were able to obtain on about 90 of the 120 children used in the

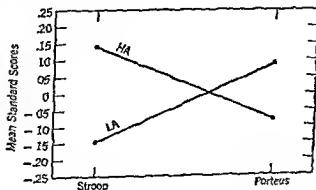


FIGURE 5 The anxiety-by-task interaction of Stroop total errors and Porteus Error Quotients.

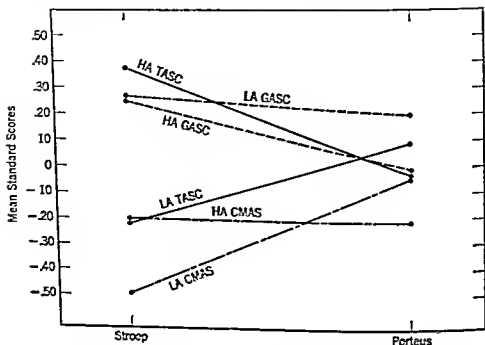


FIGURE 6 The anxiety-by-task-by-scale interaction of Stroop total errors and Porteus Error Quotients.

study indicated that this seemed to be true. There was a tendency for CMAS subjects to be above the median IQ score on the California Mental Maturity Scale ($p < .20$) and a similar tendency for more of these subjects to be above an IQ of 120 ($p < .20$). We therefore asked the question why are the children selected from this scale nearly all of above average intelligence (which was the case)? Since the children used in the study were selected randomly from all the children who scored either very high or very low on the scale, one answer to the question would be that we obtained children of high intelligence through a sampling error, i.e., this was one of those things which happen every once in a while when one selects subjects in a random fashion. Another possible explanation we considered was that the classes which were administered the CMAS were superior classes for which children had been selected by the schools on the basis of intelligence test scores. However, a look at our IQ data indicated that this was not the case. There was a wide range of intelligence test scores in most of the classes in which not only the CMAS but the TASC and GASC were administered.

Another explanation which we considered was a rather complex one which took into account the fact that the children taking the

CMAS (as opposed to those taking the other anxiety scales) had to read the items of the questionnaire themselves. It could have been the case that only those children of above average intellectual abilities could fully comprehend each item so that they could answer according to the content of the items. The child with average or less than average intelligence, on the other hand, might not be able to comprehend the meaning of the items and in attempting to follow the instructions might have answered in almost random fashion. In this case, it would be likely that the child of less ability would achieve an anxiety score which would be in about the middle of the distribution of anxiety scores, whereas there would be a greater likelihood that the above average child would get either a high or low anxiety score in line with his actual experiences and feelings. Admittedly, this is an extremely speculative explanation but we felt that we should investigate as many possibilities as we could before concluding that the results we obtained were probably due to a sampling error. If this involved explanation had some veracity, we would expect a curvilinear relationship between anxiety scores on the CMAS and intelligence test scores. That is to say, the children who scored at the extremes of the distribution of CMAS scores would be more likely than not to have achieved high intelligence test scores. A scatter plot of scores suggested no such relationship and we were forced to conclude that in all likelihood the significance of the scale effect in our analysis of variance reflects a sampling error.

Before continuing with a discussion of further analysis of the data presented in Figure 6, a consideration of the other methods used to score the responses to the two tasks is in order. As previously noted, we used several different methods of weighting and obtaining ratios when we scored the children's responses. Repeated measurements analyses of variance were carried out on these different types of scores and their combinations and in each case the results of the analyses were essentially the same. The scale effect and the interaction between anxiety and task were significant at about the same level of confidence in each analysis. Moreover, no other significant findings were obtained.

The third hypothesis, which stated that the major hypothesis would receive greater confirmation among male subjects than among female subjects, was not supported. The anxiety by task by sex interaction did not approach significance.

The graphic presentation of the anxiety by scale by task interaction in Figure 6 poses some interesting possibilities. Although this interaction is not significant, the graph seems to indicate that only in the TASC group did the obtained data approximate our predictions. That

is, the low test anxious subjects did better (i.e., made fewer errors) on the color naming test than they did on the Porteus mazes, whereas the high test anxious children did better on the mazes than they did on the color naming task. In the GASC group the results were as we expected for the HA children, but the LA children did as well on the mazes as they did on color naming. In the CMAS group, we note that the LA group did as expected, but the HA children did equally well on both tasks. However, despite the apparent differences shown in the graph, various statistical procedures failed to demonstrate that the three scale groups differ significantly from one another in the way in which HA and LA children selected on the basis of their scores on these scales performed at the two tasks.

SUPPLEMENTARY DATA. We were able to obtain the scores for all subjects on one of the standard achievement tests, the Iowa Basic Skills Test. Most of the subjects had also taken a group intelligence test, the California Mental Maturity Test. Both tests had earlier in the year been administered in the classroom by the teacher or by some other person associated with the schools. We found that the two tests were apparently measuring much the same thing since a correlation of .80 between them was found for these children. Although the Iowa Basic Skills Test is not a measure of intelligence *per se*, the high correlation with the California test indicates that intelligence, or whatever it is that group intelligence tests measure, plays a large part in determining the scores which children achieve on it.

The Porteus maze, as we mentioned earlier, also provides a measure of intelligence. Its traditional use has been as such a measure and has been found to be significantly correlated with the Stanford Binet intelligence test. Since both the Porteus test and the Iowa Basic Skills Test seem to be in some part measures of "intelligence," we thought that it would be of interest to compare the way the children used in this study scored on each of the two tests. That is, we wished to compare their achievement test scores with how well they did in solving the mazes. The maze score used here was the Test Quotient, which is a ratio between performance and age. Some of the same qualitative differences which were previously described between the color naming test and the Porteus mazes appear to exist between the Porteus mazes and the Iowa Basic Skills Test. The Iowa test is timed and the children are under this type of pressure. It involves reading just as the color naming test does. Even more than the color naming test, it is associated with the classroom situation since it is administered in the classroom and involves material which the chil-

dren have been studying. In short, it is a test to which a test anxious child should respond with manifestations of his anxiety.

The same type of analysis of variance design was used here as in the comparison between the color-naming test and the qualitative scores of the Porteus mazes: the achievement test scores and the Porteus Test Quotients were converted to standard scores and the same variables (anxiety, sex, scale, and task) were used. The results were even more striking than those obtained in the study proper. The anxiety-by-task interaction was significant at less than the .025 level of confidence and was in the predicted direction. Figure 7 shows this interaction and indicates that the difference between the two anxiety groups was greatest when the achievement test scores were compared, although the difference between the Porteus Test Quotients was in the predicted direction.

Evaluation of the hypotheses. The hypotheses which were stated on p. 176 may now be evaluated in terms of the analysis of the data. The first, and major, hypothesis was:

1. While the LA children would be expected to do better than the HA children on the Stroop test, the relative positions of the two groups in terms of qualitative scores would be reversed in the Porteus mazes, with the HA children doing better.

The hypothesis was supported by the data. The fact that the hypothesis was supported encourages us in our belief that the explanation which gave rise to the hypothesis has some merit. This explanation, to recapitulate briefly, assumed that two factors were crucial in

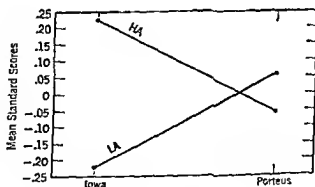


FIGURE 7. The anxiety-by-task interaction of Iowa Basic Skills Test scores and Porteus Test Quotients.

determining the performance of HA subjects. The first factor involved the nature of the instructions: the degree to which they present the examiner as one who is, in one way or other, supportive, e.g., by not "demanding" speed, by allowing additional trials. The second factor, probably not independent of the first, is the degree to which the nature of the task allows the child "to check" the response he intends to give, i.e., the degree to which cautiousness is rewarded rather than punished. When these factors are present in relatively high degree—as in the mazes and embedded figures—the HA child is benefited because in such a situation the interpersonal and test cues which exacerbate anxiety in the HA child are minimal or absent. *In such a situation we may be unjustified in talking about the facilitating effects of anxiety inasmuch as our explanation implies that the HA child is not experiencing anxiety to the degree that it is interfering.* It would perhaps be more correct to say that in such a situation certain needs (e.g., dependency) of the HA child are being gratified at the same time that a prepotent style of responding (e.g., cautiousness) is benefiting rather than penalizing.

The second hypothesis was stated as follows:

2. The first hypothesis will receive greater confirmation within the group of subjects chosen on the basis of the TASC scores than within the other two scale groups.

This hypothesis stemmed from a consideration of the items of the three anxiety scales. The TASC items all referred to school situations in which the child was being evaluated. The items of the other scales were much more heterogeneous in their content, referring to children's reactions in a variety of situations. Since the color-naming task and the Porteus mazes were introduced to the subjects as "tests," and were obviously measures of the children's abilities, a child's responses to the TASC items should be more relevant to the way in which he experienced the two experimental tasks than his responses to other questionnaires.

The data, when presented graphically, appeared to support this second hypothesis. However, the statistical analyses of the data did not indicate that this support could be considered to be significant. That is to say, the obtained differences between the three scale groups in the way in which HA and LA children performed were not sufficient to allow us to consider the results of the study as supportive of the hypothesis, although the data certainly do not contradict the hypothesis.

It will be recalled that in Chapter 6 evidence was presented from

several studies indicating that TASC scores predicted to different problem solving tasks better than did GASC scores. The absolute size of the differences between TASC and GASC was small, although the trend was significant. We also pointed out in that discussion that differences in degree of predictability from the two scales could not be large if our hypothesis (Chapter 2) was true that the high test anxious child would also be one who was generally anxious. We already know that there is a strong relationship between the TASC and the GASC. That is, children who score high on one tend to score high on the other. Thus, it is likely that the children selected on the basis of the GASC also scored high on the TASC, and therefore could not be considered to be too different from the children selected on the basis of TASC scores. Although we have no actual correlations between the CMAS and the TASC, we would suspect that much the same relationship holds between these two as between the TASC and GASC. Nevertheless, the correlations are certainly not unity, and one would expect some differences in their predictive powers on the basis of item content. It may have been that the differences in predictive power exist, but are not strong enough to be detected in this type of study. If the number of subjects in each scale group had been greater the hypothesis might have been confirmed. An explanation suggested by the fact that the data tend towards confirmation of the hypothesis. It is also possible that variations in the relative predictive power of the scales is in part a function of differences in the sampled populations, i.e., in one study the correlation between the anxiety scales may be significantly higher than the correlation in another study. Where the correlation is higher there should be less difference in predictive power than when the correlation is lower.

The third hypothesis dealing with the expected sex difference failed to receive support. It should be noted that this hypothesis was primarily exploratory in nature in that it was suggested by a sex difference found previously which approached statistical significance. In addition, variations in methodology (e.g., in task, sampling and population, as well as in the sex of the test administrator) could account for the present failure to find a sex difference.

SUMMARY

In this chapter we have discussed the findings of six studies in which the TASC alone, or in combination with the GASC, was the central measure. In contrast to the studies discussed in the previous chapter,

those in this chapter involved (with the exception of figure drawings) problem-solving in face-to-face testing situations. It is apparent, however, that the investigations discussed in the two chapters are congruent rather than discrepant in the direction to which these findings point.

The general hypothesis that children who are anxious by our measures should have greater difficulty with tests than their nonanxious peers appears to have received strong support. Performance of HA children was "poorer" as measured by a variety of standards, e.g., in the figure drawing, Rorschach, and learning studies, and on the color-naming task of the study which also employed the Porteus mazes. Where results were obtained which did not support this general hypothesis, certain conditions of those studies were thought to have affected the results in a way which was in line with predictions derived from other hypotheses.

Another major hypothesis described the conditions under which the anxious child could perform as well as or better than his nonanxious classmate. Two of the studies in this chapter, in addition to the Davis-Eells studies in the previous chapter, demonstrated that this hypothesis had merit. There were three variables with which this hypothesis was implicitly or explicitly concerned: dependency, cautiousness, and the "test-like" character of the task. In none of the reports was it possible to evaluate the role or relative strength of each of these variables. For example, in two of the studies (figure drawings and Rorschach) dependent behavior was precluded and the expected results obtained. However, only an inquiry in which two conditions, encouragement and discouragement of dependent behavior, were used and compared would provide data directly relevant to the role of dependency. In the embedded figures study we assumed that dependency was a variable but it is impossible to determine in that study the importance of cautiousness relative to dependency. What is clearly necessary are investigations designed in a way to enable one to assess the role of each variable.

Parental attitudes

CHAPTER 8

Thus far in this book we have been concerned with one question: do our anxiety scales, particularly the TASC, predict performance in testing or problem solving situations in ways indicated by the relevant hypotheses discussed in Chapter 2? A great deal of effort was put into the testing of these hypotheses because of our feeling that if they received strong support, we would feel both justified and more secure in studying those other hypotheses the formulations of which could not be stated as specifically as we would have liked. Of equal importance in the "tuning" of our studies was the fact that the methodologies available for the testing of these more generally stated hypotheses are not as objective or manipulable as those available for testing the hypotheses which were the focus of the preceding two chapters. For example, the hypotheses concerned with performance in problem solving situations are both more specific and testable by relatively objective procedures than are the hypotheses concerned with parental attitudes and behavior as evaluated by interview procedures. Consequently, we did not attempt to evaluate hypotheses concerned with parental behavior and attitudes until several years after the initiation of this research project. When we did begin to evaluate such hypotheses, the focus of the present chapter, it was with the realistic expectation that these initial efforts, however time-consuming, would be the basis for more definitive studies in the future. As we indicated in the early pages of Chapter 6, the status of a hypothesis should be determined by a matrix of relevant studies rather than the findings of a single study, or a particular finding within a study.

In the theoretical discussion in Chapter 2 two hypotheses were formulated which led naturally and directly to the utilization of the parent interview. The first hypothesis stated that the reaction of the test anxious child in test situations in the classroom reflects experiences in evaluative situations in the home both before and after the beginning of formal schooling. Secondly, it was stated that the test anxious response has, in addition to its conscious significances, concurrent unconscious meanings which are related historically to particular kinds of parent-child relationships. Thus, it was necessary to inquire of the parents concerning their child's experiences and development both before and after starting school.

Psychologists have utilized parental interviews for at least two reasons. First, personality development and similar concepts are historical terms so that previous experiences of children are implicitly important in the study of their behavior. Second, psychoanalytic theory and related research have provided an impetus to this trend by emphasizing and demonstrating the crucial effects of the first years of life on later personality and adjustment. As a result, the parent has become the most sought after source of information, however accurate or inaccurate, about the child. The parent, generally, is the only person with the opportunity to observe, recall, and report on the child's earliest experiences as well as later development. Others—siblings, relatives, teachers, or the child himself—have all been limited in their opportunity to do these things in one respect or another.

Other inferences were drawn in Chapter 2 which give added significance to the use of the parental interview. Included among these is the view of the parent as playing a central role in the child's experiences which result in his acquiring the reaction of anxiety and, more particularly, the test anxious reaction. That is, the test anxious reaction was described as the result of a complex interaction between the parental threat of negative evaluation of the child's performance and the child's conflicting feelings of aggression toward his parents and his needs to be dependent upon them. The account also outlined the vicious circle of behavior which evolves as a result of parental misperception and mishandling of the child's repeated efforts to find stable solutions for his conflicts by seeking "acceptable" expressions of "unacceptable" feelings and impulses. Therefore, interviewing the parents would provide an opportunity to investigate not only the child's behavior and personality but also the nature of the parents' role in mitigating or reinforcing the child's tendency to react in the test anxious pattern. In other words, the information from parents might indicate not only that the anxious child's feelings of hostility to his par-

ents conflict with his dependence on them, but also that his parents misunderstand or mistreat his efforts to resolve these conflicts by finding "acceptable" expressions for his hostile feelings

There were other aspects of our theoretical discussion which had general, as well as specific, implications for the parental interviews. It will be recalled that the test anxious response was hypothesized as reflecting several things: conflict in regard to aspiration and achievement, derogatory attitudes toward self and body, and conflict in the overt expression of aggression. Although these hypotheses were not stated in a manner which unambiguously pointed to the kinds of questions one would put to parents, it was expected that parental interviews would shed light on the hypotheses, if only to the extent that the problems involved in obtaining relevant data would be clarified and serve as a basis for future studies.

These, then, were the considerations which culminated in the decision to utilize parents as a source of information about the development and characteristics of anxiety in children and which were prime determinants of the nature of the information to be requested of the parents. It is with these considerations in mind that we present and discuss the procedure that was followed in the parent interview study.

PROCEDURE

In presenting the procedure followed in this study the subject population is discussed first, then the nature and development of the interview questionnaire and rating scales, and finally the manner in which the interviews were conducted.

Subjects. The subjects for the parental interviews were the same 32 pairs of HA and LA children (matched on grade, sex, and IQ) who were used in the Rorschach and learning studies discussed in Chapter 7. The mothers of all these children were interviewed but only 21 of the 63 fathers* were present either for all or part of the interviewing. As a result, as far as behavior during the interview is concerned, only the mothers of the HA and LA children could be compared.

The decision to select mothers rather than fathers for interviewing was based largely on two facts. First, the practical difficulties involved in getting both parents together at a time and place convenient to the interviewer were tremendous. It would have required about twice the time actually consumed. The second fact is that in studies using sim-

* It happened that two girls serving as subjects were sisters, so that actually only 63 separate families were involved.

ilar procedures the general approach has been to obtain information only from mothers—it might be said for precisely the same reasons as we have given. We certainly—and other researchers evidently—have proceeded on the premise that mothers are more accurate and better informed reporters than fathers about the behavior and personalities of their children. Therefore we felt that by not requiring fathers' answers little of value in understanding the children would be lost. Any thing of importance the fathers could tell us we felt could be elicited from the mothers. To anticipate matters a bit, *the findings obtained from the interviews suggest that the validity of this premise is seriously in doubt* (Davidson et al., 1958). However, at the outset of the investigation, practical considerations argued for interviewing mothers alone. Actually, the fathers of all the children did serve as subjects in two aspects of the interview procedure. All the parents—both fathers and mothers—completed two rating scales which were integrated into the interviews.

Interview Questionnaires and Rating Scales Following the decision to interview parents, a complex set of variables influenced the development and final form of the interview questions. In order to appreciate these variables fully, a more careful examination of the purposes of the parental interview will precede a discussion of those factors.

The interview approach attempted to obtain evidence bearing at least in some degree on the validity of many of the hypotheses developed in the theoretical formulation whereas the other investigations conducted within the project generally were concerned with one or two of these hypotheses. Because the interview study involved so many hypotheses, no one of them could be investigated as elaborately or effectively as if only one hypothesis had been selected.

An additional and no less important purpose of the interview study was to obtain information about the children and their environments that would aid in understanding the development and treatment of anxiety in children and, equally valuable, in deciding on the most fruitful approaches in future investigations. For these reasons a number of items were formulated and integrated into the interviews with the primary goal of clarifying either the most fruitful avenues for future research or the development and methods of treatment of anxiety in children.

Because compromises were necessary and exploratory investigations were important, the degree of assurance in predicting with respect to any one of the hypotheses under study was not great. However, in one sense all the hypotheses could be subsumed under the broad prediction that information from the parents would describe the LA children

more favorably and with fewer and less severe emotional disturbances, conflicts, and anxieties than the IIA boys and girls

With these considerations and this broad conceptualization of the hypotheses in mind, we can discuss the other variables which influenced the development of the interview questionnaires. These variables include (a) the nature of the hypotheses, (b) the fact that both the TASC and GASC were involved, (c) needs for economy and parental cooperation, and (d) the desire for objective measures as well as subjectively presented information from the parents

The first of these, the nature of the individual hypotheses, of course had great importance in the choice and formulation of items. For example, some questions were asked about the child's reactions of anxiety and the parents' method of handling these before and after entering school, others attempted to assess the child's conflict between expressing aggression to his parents and needing to be dependent on them. Then, because of the "vicious circle" or "repetition" phenomenon in the theoretical formulation, questions were included to evaluate the degree to which disturbances and reinforcements of the anxiety reaction were continuous or repetitive

The fact that the research concerned two separate scales, the TASC and the GASC, suggested an organization of two groups of questions, one group pertaining to the school and test like situations and the other dealing with anxiety and the child's emotional development and adjustment in general. Because of the number of questions in each group two separate interviews, one generally relevant to the TASC and the other to the GASC, were completed.* In the first interview the parent was questioned about the child's school experiences, emphasizing the first day and year of school, any academic difficulties, problems in interpersonal relationships with teachers and peers, and the parents' role in the child's development and adjustment to the problems and new situations which the child encountered. We also desired information concerning the parent's evaluation of the child's ability and performance as well as the nature of the aspirations the parent had for the child. In the second interview the parent was asked about the child's interpersonal experiences and reactions and the parent's perception and handling of the child with respect to feelings of anxiety, aggression, and dependence. Biographical material was also obtained with reference to siblings, parents' education and occupation, and the child's illnesses and injuries.

As a result of this procedure, two evaluations of the hypotheses were possible, once with regard to information about the child in school and

* The parental interview schedules are given in Appendix F

test like situations, and then again with reference to the child's emotional development in general. Actually, this division of the interview questions was intimately connected with the third variable given above, the need for economy and parental cooperation. It became apparent, even after omitting many questions, that if all the information was to be obtained at one time, it would be a long, tiring session for both the parent and the interviewer and might well prevent the latter—in terms of time and fatigue—from making a prompt report of his impressions of the interview. This last aspect (the interviewer's report) was deemed sufficiently important that it weighed heavily against having one long interview. Another advantage to having two interviews was that it permitted less stringent economy with respect to questions that otherwise would have had to be omitted. In particular, some questions pertaining to possible future investigations could be included and other items could be covered in greater detail. At the same time, separating questions about the child's school experiences from his general adjustment was expected to be less confusing and to promote easier recall, especially of early events, by the parent.

Two further points should be clarified with respect to obtaining and holding the cooperation of the parents. First we anticipated—correctly—that some parents would object to questions they thought too personal, or perhaps irrelevant. Losing the cooperation of a parent meant replacement of the child in that matched pair, which we hoped to avoid particularly in view of the difficulty in obtaining the original matched pairs of HA and LA children. Because of this, questions concerning the child's sexual development or experiences were not included, nor, for example, questions about family income. Second, to assure continual cooperation parents were not pressed for information but were allowed to respond freely to all questions. To the same end, they were asked a number of questions about their opinions and even on the few multiple choice questions were free to qualify the answer they selected and encouraged to do so.

It is obvious from the last sentence that most of the information from the parents was in the form of sentences or accounts of events or opinions. Since information in such form is not always easy to cope with, either in scoring or statistical analyses, it seemed desirable to have some responses from the parents that would not present this difficulty. We decided that brief simple rating scales could supply measures of parental views of the child and child rearing practices. Additionally, such rating scales offered an excellent opportunity to obtain answers from the fathers in a simple procedure that would require little time or effort on the part of either the fathers or the interviewer.

With these considerations in mind, two such rating scales were developed, one for each interview session. The first of these was a group of statements about various aspects of child rearing practices. All the items were selected from the Parent Attitude Scale (PARI) (Schaefer and Bell, 1958) and were concerned with practices related to strictness and punishment of children, handling of their aggression, developing dependence and independence in the subjects, and acceptance of the parental role by the mothers and fathers.* For each statement, the parents indicated whether they (A) agreed strongly, (a) agreed mildly, (d) disagreed mildly, or (D) disagreed strongly.

As part of the second interview both parents also evaluated their child on a check list of 25 items representing a variety of personality characteristics.† For each item, a rating was required on a six point scale with definitions for the extremes provided. For example, item 1 was presented as follows:

Immature	3	2	1	1	2	3	Mature
acts younger than age							acts grown up

Each parent was instructed to compare his child with children of his own age. They were to decide which of the two words described him better and then encircle one of the three numbers on that side, with the three numbers defined as 1, a little more on this side, 2, definitely on this side, and 3, very much on this side.

Thus, the first interview inquired about the child's development and experiences pertaining to school and test like situations. At the end of the session, the mother and father (if he was present) completed the rating scale concerned with child rearing practices. The second interview sought information about the child's emotional adjustment and personality in general. In this session the personality check list was completed by both parents after the first interview item which asked for a general, free description of their child. When the father was not present in either interview, the respective rating scale involved was left for the father to complete.

To this point, we have discussed the relationship of the theoretical formulation to the parental interviews, and we have described the problems in constructing the interviews and rating scales as well as the final forms of the questionnaires. The following account presents the manner in which the interviews were conducted.

Method of interviewing the parents Since the parent interviews were one of several procedures utilized in the study involving these 32

* The items selected from the PARI are listed in Appendix G.

† The Adjective Check List is found in Appendix H.

matched pairs of children, it will help the reader to know the sequence of these procedures as well as the specific details of interviewing the parents.

Following their selection as subjects, each child was observed in the classroom for one hour. Some were observed twice for reliability purposes. Only after this were the child's parents contacted concerning the interview. The principal of the child's school wrote to the parents indicating that their child had been selected for our research and introducing the interviewer, who called the parents a few days later to arrange for the first interview. In no case was the interviewer aware of whether a child was in the LA or HIA group, or with whom a child had been matched. Of 70 families contacted, only 7 either refused to be interviewed or eventually did not take part in the research.* The parents were not contacted until the classroom observations were completed, so that the children would not assume they were being observed and would be more natural in that procedure.

At the end of the first interview, the parents were told that we would meet with the child individually in the school on two occasions. These followed the first interview and preceded the second. In this way the parents' approval and cooperation could be obtained and, in the event of any difficulty (there was none), the interviewer had the opportunity to discuss it thoroughly with the parents.

The second parent interview followed the first after an interval of about two months. All the interviews were arranged at the parents' convenience. Then, since they were serving as subjects and giving considerable time and effort to the investigation, the parents received five dollars for each session. Here it may be said that over-all cooperation was excellent and generally the parents indicated that payment was not necessary. However, this specific procedure definitely aided in promoting cooperation and positive feelings among the parents for the interview procedure and the research in general.

A final, and eventually a very important, aspect of the interview procedure was that for each separate session with a parent, the interviewer wrote a report of one to three pages in which he spontaneously discussed the information provided and the parents' behavior during that interview.

RESULTS

At one point during the collection of the interview data the interviewer concluded that he could not see how he could differentiate be-

* See footnote on p. 191.

tween the LA and HA children. While it might seem surprising that he felt this way, it should be clear that at the time he was experiencing a confusing welter of information which time and appropriate procedure would not permit being organized at that point. For that matter, before any analysis would be possible, he could only anticipate that the remaining interviews would add to the confusion he was experiencing.

In retrospect, this turn of events was the first suggestion that it would be necessary to conduct a careful analysis of the tendency for the parents to be defensive about what they told the interviewer. At any event, later findings—as will be seen—necessitated such an analysis. However, there was no carefully planned attention to or method of measuring defensiveness on the part of the parents either before or during the interviewing. Of course, the question can be asked why had we omitted a careful measurement of this important behavior? It was perhaps because so much care had been taken in selecting and phrasing the questions of the interviews that an implicit assumption was made that there was little in the questions to arouse a need in the parents to be defensive or that, if elicited, the tendency for parents to be defensive in their responses would have negligible effect. However, another tacit assumption had been made, namely, that in his report the interviewer would discuss the parents' behavior in the interview with emphasis upon such matters as censoring, completeness of answers, contradictions in their reports, evasiveness, and attempts to create a favorable impression upon the interviewer. Because of this, material was available to provide a measure of defensiveness shown by the parents. However, in spite of the findings provided by the interviewer's early confusion and by the "innocent" presence of comments concerning defensiveness in the write ups, the importance of that information did not really become forcibly clear until the parents' ratings of their children on the check list had been studied. While the ultimate findings pertaining to defensiveness have crucial implications, their presentation will follow the results of the check list analysis for the purpose of clarity.

Check List Ratings On the check list, all the mothers and fathers rated their own child (compared with peers) with respect to 25 personality characteristics. As will be recalled, we had predicted that the LA children would be described more favorably and with fewer tensions, conflicts, and anxieties than would the HA boys and girls. On this basis, the ratings of the LA children were compared with those of the HA subjects. To do this, three judges independently evaluated the 25 items of the check list to determine which characteristics had a

clearly favorable value at one end and an unfavorable value at the other. They agreed that 16 of the variables possessed this quality. Therefore, for these 16 items the LA children were expected to be rated more toward the favorable extreme than their matched HA mates.

This prediction was to be evaluated by comparing the ratings of each matched pair of subjects on each of the 16 items to see if the LA or HA child had been judged more favorably. In these comparisons, all that was considered was the *direction* of differing evaluations of a pair of LA and HA subjects and in no analysis was the degree to which a child was judged more favorably than the matched mate taken into account. For *each* of the 16 items the number of fathers of LA boys who rated their sons *more* favorably was counted as well as the number of times they rated their sons *less* favorably than the son's HA mate. The comparison of favorable to unfavorable ratings was evaluated by a sign test and its statistical probability level of significance was computed.* Following the same procedure, the ratings of the LA subjects were compared with those of their HA mates for the various parent-child groupings in the column headings of Table 12. It is the probabilities of these comparisons which appear in the body of the table. In all groupings, mothers' ratings were compared with mothers', and fathers' compared with fathers'. For the three "parent" groupings the results for the appropriate mothers' and fathers' comparisons were pooled.

With these considerations in mind, a first glance at Table 12 finds the data supporting our over all prediction. Discussion of that will be postponed in order to consider one particular finding. The fathers of the LA rate their children more favorably on these items than fathers of the HA, but the mothers of HA and LA children evaluate them *equally* favorably. Specifically, fathers see LA boys as more mature and responsible, mothers say they lead others more than HA boys. For the girls, fathers rate the LA as more optimistic, responsible, and less generous than the HA, mothers rate them essentially equally favorable on the separate items and in fact, over all, the mothers judge the HA girls slightly more favorably than the LA. Most important, comparing the "father-child" and "mother-child" columns, it will be noted that the fathers evaluate the LA subjects as more mature, optimistic, re-

* Occasionally the rating of a LA child was identical to that of his HA mate. Since primary interest in these comparisons was in *differences in direction* of rating, such "ties" were not included in the sign test and probability computations. It is worth pointing out that where probability values in Table 12 approach .50 ties were most numerous.

TABLE 12

Difference in Parents' Favorable Ratings of LA and HA Children *

Item †	Father -Boy	Mother -Boy	Father -Girl	Mother -Girl	Parent -Boy	Parent -Girl	Father -Child	Mother -Child	Parent -Child
Mature	.02	.29	.29	.78	.02	.50	.02	.50	.07
Sociable	.29	.50	.50	.50	.35	.50	.35	.50	.44
Unanxious	.28	.50	.30	.30	.42	.28	.16	.43	.18
Optimistic	.39	.39	.07	.50	.27	.15	.08	.42	.12
Responsible	.07	.50	.09	.50	.15	.10	.02	.50	.04
Active	.71	.50	.50	.75	.75	.76	.75	.76	.87
Relaxed	.00	.71	.13	.29	.77	.09	.36	.50	.39
Leads others	.19	.00	.50	.50	.03	.50	.27	.20	.12
Independent	.81	.50	.71	.50	.65	.58	.77	.50	.71
Generous	.50	.81	.97	.72	.74	.98	.92	.00	.98
Ambitious	.11	.13	.50	.78	.03	.80	.13	.41	.14
Affectionate	.87	.77	.83	.39	.92	.59	.95	.50	.88
Adaptable	.81	.80	.13	.19	.83	.06	.50	.43	.38
Care in plans	.40	.13	.39	.81	.14	.58	.29	.50	.27
Not sensitive	.40	.29	.15	.50	.22	.16	.14	.27	.09
Takes blame	.39	.61	.50	.50	.50	.42	.34	.50	.44
Mean difference test ‡	.01	.25	.15	.60	.20	.20	.10	.50	.10

* Probabilities below .50 indicate that the LA were rated more favorably than the HA and values over .50 indicate that the HA were judged more favorably than the LA subjects. Items significant in the predicted direction at or below $p = .10$ are shown boldface, as well as those items significant in the opposite direction with a p value of .90 or above. Only probabilities appearing in the first four columns are experimentally independent of each other.

† The terms for the favorable extremes of the items are listed.
‡ $N = 10$.

sponsible, and less generous and affectionate than the HA boys and girls. Again for all the children, the mothers do not differentiate significantly between the LA and HA either generally or in terms of individual items. For 12 of the 16 items, the mothers see the HA and LA subjects—for all practical purposes—as being not different at all.

In other words, for the 16 items, separately and combined, whatever differences are seen between the LA and HA subjects are seen by the fathers and not the mothers. These results take on added significance in view of the fact that significant and predicted differences between these 32 matched pairs of LA and HA children have been obtained in other respects: direct classroom observations, the Rorschach situation, an experimental learning task, human figure drawings, and marks on school report cards.

Several explanations are possible for the different findings for fathers and mothers. It is distinctly possible that fathers, who spend less time with their children than do mothers, are less emotionally involved with their children. If so, they could perceive their children somewhat more dispassionately and feel freer to reveal any negative evaluations they make of their children. It may also be that the mothers, who had been asked many questions (before completing the check list) about their children's adjustment, were in some way compensating for or reacting against whatever facts or attitudes they had revealed to the interviewer. Having been exposed to so many questions, the mothers may have been more attuned, unconsciously or consciously, to what was considered favorable on the check list.

Another possibility, of course, is that the fathers and mothers were not actually discrepant but were basing their judgment on different samples of behavior. That is, fathers see their children at different times of day than do mothers, as well as in relationships with different people and with different personal reactions from their children. At any rate, it is one thing to say that the ratings of mothers and fathers are different and another thing to say that one is valid and the other is not. *However, we feel entitled to draw the conclusion that developmental studies which rely on the ratings or observations by the mother (and this characterizes almost all such studies including this investigation) may by overlooking the father, be depriving themselves of important information* (Davidson et al., 1958).

The findings of the check list aroused concern about the information obtained from the parental questionnaires. As noted, the ratings by mothers did not differentiate between the HA and LA subjects, and in the case of the girls they even tended to favor the HA somewhat. This might not have been disturbing except for the fact that it was the

mothers on whom we had relied in the interviews for information about the 64 children. The fathers had been present in some cases, but their numbers were few and their presence had been extremely irregular. As a result, these findings elicited considerable concern that the mothers' replies to the interview questions would parallel the results with the check list in that they would describe the HA and LA subjects equally favorably—or worse again, see the HA girls in a better light.

The check list did suggest that *mothers would tend over all to see the LA boys more favorably than the HA*, but they rated the HA and LA boys as equally unanxious, a finding which suggested that minimum differences would be reported in the interviews by the mothers for the most important variable of all, i.e., anxiety. This also seemed true in the case of the girls.

Thus it seemed that, since the interview information came almost exclusively from mothers, significant differences might be masked or covered up in their responses to the questions. Not only were the mothers of the HA children describing them as "unanxious" while the children themselves admitted many anxieties, worries, and fears, but the mothers of the HA children judged them more favorably than the fathers of the same children. *It was at this point that it was presumed that the mothers of the HA subjects were more defensive than the mothers of the LA subjects in evaluating their children and responding to questions in the interviews* (Davidson et al., 1959).

The decision was made at this point to determine whether this presumption was correct. If it was, it would provide some explanation of inconclusive results in the interviews. Also, if it was true that mothers of HA children were more defensive, this fact would, by itself, lend support to the validity of the theoretical formulations underlying the interview procedure and of the two anxiety questionnaires. Actually, both of these considerations are interrelated. That is, greater defensiveness on the part of the mothers of HA subjects would indicate that they possessed more "unacceptable" behaviors in themselves and in their children to defend against expressing to the interviewer. The need to be defensive in this way, at the least, would indicate concern that the interviewer and possibly they themselves would become aware of what is "unacceptable." Conversely, less defensiveness would signify less concern about telling the interviewer about themselves and their children. It is also possible that greater defensiveness in the interview is related to greater reliance on defenses in handling their children and the conflicts the children are trying to resolve. In short, the anticipated finding of greater defensiveness in the mothers of the HA subjects would tend to indicate that they had more problems to cover

up and that their greater defensiveness would tend to reinforce rather than mitigate whatever reactions of anxiety their children experienced

Ratings of Mothers' Defensiveness. These issues having been raised, it was necessary to decide on a procedure for comparing the mothers of the LA and those of the HA children with respect to the tendency to be defensive or to distort in answering questions in the interviews. Any distortion due to defensiveness can be of at least two kinds. The first is a conscious withholding or falsification of information and the second is unconscious defense against recognition of both the mother's and the child's "unacceptable" overt and covert behavior. Of these two defensive distortions, it was felt that it was more likely that the interviewer would have noted conscious withholding by a parent in his brief postinterview reports. In order to assess the mothers' tendency to withhold consciously, the following procedure was utilized. Six judges independently read the two reports (one following each interview) for each parent with the instructions to rate a parent as "defensive" if the interviewer had said something in his report to indicate the mother was consciously censoring the information she was revealing. Each judge was to indicate whether *the interviewer had concluded* the parent was defensive, not whether the judge himself so concluded.

The results of the analysis for three judges showed that significantly more mothers of HA boys were rated as defensive than mothers of the LA boys. For two other judges there was a slight tendency in the same direction, while the remaining judge's ratings of "defensive" were about equal for the mothers of LA and HA boys. The judges' ratings of "defensive" were added for each subject and the mothers of the matched pairs of LA and HA boys were compared on this "defensive" score. In this over all analysis mothers of HA boys were found significantly more defensive than those of the LA boys. The same procedure was followed for girls, but while the results were in the same direction the difference between mothers of LA girls and mothers of HA girls was not large enough to be significant. As a result, even though the interviewer's reports were not focused on defensiveness as would have been the case if the distortion by the HA mothers had been anticipated more clearly, these findings presented evidence that the mothers of the HA boys were more defensive in the interviews than the mothers of the LA boys. But it was necessary to corroborate this evidence, particularly since the results for the girls were not significant although they were in the predicted direction.

In order to study further the finding of greater defensiveness in the mothers of the HA subjects, some objective analyses of mothers' responses to questions of the interviews were done. First, it was as-

sumed that if they were withholding more, the mothers of the HA subjects would have less to say. Therefore it was decided to count the number of words a parent spoke in answering questions. Two questions were selected because both involved the parents giving relatively unstructured descriptions of their child, i.e., they could say as much or as little as they wished. The first of these was in the first interview and sought a free description of the child's first day in school. The second asked the parents for a free description of their child, and it was the first question asked in the second interview. The fact that these questions were from separate interviews presented the advantage of permitting an additional measure of the constancy of the results. One other measure was selected, namely the tendency for the mothers to ask the interviewer questions about the two questions. This also was regarded as defensive behavior because the items were simply stated and questions asked by the parent could reflect insecurity about what to say and, more important, what to leave out. A parent who asks "What do you want to know about —?", rather than just answering the interviewer's question, is expressing insecurity about what to include in her description. But if her question is answered, she can covertly permit herself to omit comments about the child or her relationship with the child regarding specific areas the interviewer might have overlooked. There is the additional point that having more "unacceptable" behavior or "unfavorable" material to discuss might indeed elicit greater need in the parent for avenues of excluding such information from her description. Finally, questions asked by the mother in this context can be interpreted as dependent behavior resulting from anxiety about the information she might give and about what she might feel would be the interviewer's reaction to that information. While parents who asked the interviewer what he wanted to know seemed to prefer being dependent, many did not enjoy appearing defensive. A number of these said—then or later—that they would give all the details when more specific questions helped them to recall more information.

The two interview questions were analyzed regarding the number of words the parents used in their descriptions and whether or not they asked the interviewer questions. The results definitely corroborated the earlier finding that the mothers of the HA were more defensive than the mothers of the LA in the interview. That is, in the free, general description of their child, more HA mothers asked the interviewer questions than did mothers of the LA boys and girls. In the same question parents of HA verbalized less than the parents of LA boys and girls.

In the free description of their child's first day in school, parents of LA boys used significantly more words (total count) than parents of HA boys. The results were in the same direction though the difference was not great on this question for the girls. This question seemed to elicit little inquiry from the parents, possibly because it refers to a specific event. This also may have occurred because in most cases the parents were asked about an event which had taken place more than one year previously, permitting easy reliance on "not being able to remember" as a defense against revealing unfavorable information. In analyzing information about the first day of school, it was noted also that twice as many parents of the HA girls, in contrast to parents of LA girls, did not mention anything about emotional aspects of that event. The mothers of the HA and the LA boys tended generally to have some comment in this regard.

Thus our efforts to substantiate the finding that the mothers of the HA children were more defensive showed that mothers of LA children tell more, are more spontaneous, and are less dependent on the interviewer than the mothers of the HA boys and girls in discussing their children's experiences and personalities. There is some indication that the mothers of LA girls tend to deal more fully than mothers of the HA girls with emotional aspects of their daughters' entrance into school life.

Analysis of the parents' ratings of agreement and disagreement with statements about child rearing practices (PARI) also supported the finding of greater defensiveness in the parents of the HA children. That is, both groups of parents tended to take the socially acceptable position, e.g., being against corporal punishment and in favor of free communications between parent and child. However, the mothers and fathers of the HA girls tended to take the extreme position in this respect, while the LA girls' parents agreed or disagreed, as the case may be mildly. Generally, the pattern showed the parents of HA children as saying they always believe in the most socially acceptable practice, whereas the parents of LA children seem to leave room for an ideal. It is as if the parents in the HA group were protesting too much that they use the "right" practices with their children—which again suggests a conscious effort to present themselves in a better light to the interviewer than the one in which they see themselves.

Thus in a general way, it can be stated that in the interviews the mothers of the HA subjects were more defensive than those of the LA subjects. More specifically, their defensiveness seems to have been of

the conscious withholding or distorting type, at least in terms of the results of analyzing the judges' ratings of the interviewer's reports. At first glance the later finding of briefer answers by HA mothers might seem to fall in the same category of conscious withholding, but it is also possible that the HA mothers' greater restraint in describing their children was the observable result of unconscious defense against recognition of their children's and their own "unacceptable" overt and covert behavior. As for their *greater tendency to ask questions of the examiner*, this also may have involved both conscious and unconscious defenses contributing to this overt indication of insecurity in communicating, dependence, and quite possibly evasion.

In order to perceive the relevance of the findings concerning defensiveness for our theoretical position, it is necessary to make one assumption that defensive behavior, as defined by the situation, tends to be evoked more by "unacceptable or unfavorably tinged" experiences, qualities, or behaviors of the child or the parent than by similar factors of "acceptable or favorable" quality. It is conceivable that a parent's concern about appearing boastful might be a case in which defensiveness was stimulated by the parent's wishing to withhold positive material. However, few parents who were judged defensive or gave brief answers to the questions studied seemed at all averse to revealing what they regarded as "acceptable or favorable" information. In fact, it seemed to be the LA children's mothers (rated non defensive) who were the individuals saying "I don't mean to brag but the facts are —," and calmly related some positive quality of their child.

The findings we have reported are consistent with and lend support to the general hypothesis that the interview data would describe the LA children more favorably and with fewer and less severe conflicts and the like than the HA subjects. In other words, the results suggest that the HA children experienced conditions which would strengthen the reaction of anxiety more than the LA children, whereas the latter met with more mitigation of anxiety than their HA mates. The finding of greater defensiveness in the parents of the HA children has implications for the other analyses of the information obtained in these interviews. Briefly, the evidence that the HA mothers consciously and unconsciously were more defensive in describing their children suggests that the information obtained in the interview was slanted more favorably for the HA subjects than if the mothers of the HA and LA children were equally defensive. That is whatever findings favoring the LA group are found in the parental interviews can be regarded as probably reduced in degree from what would have been the case if the

parents of HA children had not been more defensive than the LA children's parents

Two general points can be made at this time concerning research involving reports from parents. First, in many studies of this kind it is likely that investigators will compare groups of children whose parents may have differential needs or tendencies to be defensive in discussing their children and their relationships with them. In the light of our results, it can be suggested that a measure of parental defensiveness in responding to questions can provide not only a test of hypotheses but also an indication of the quantity and nature of distortion contained in the information obtained from parents. It is obvious that, with careful plans, the measures of defensiveness could be more effective, for instance, by either broadening their scope or by a more intensive focus on specific defenses or distortions of importance in a particular investigation. The second implication for such research stems mainly from the difference between fathers' and mothers' ratings on the checklist. That is, the fathers' ratings differentiated the LA and HA children in the predicted direction, whereas the mothers saw the LA and HA children as essentially similar on the personality variables involved. The suggestion for researchers here is clear. By omitting fathers' answers to their questions about children, and relying on the mothers' reports, investigators may be depriving themselves of important and perhaps crucial information.

With these considerations in mind, we now present and discuss the results of the analyses of the information and ratings obtained from the parental interviews. In order to provide a clearer understanding of the findings obtained in this study, we have divided them into three categories: biographical data of the children and the parents, school experiences and adjustment, and anxiety and emotional adjustment and development.

BIOGRAPHICAL CHARACTERISTICS

In both interviews, there were questions which sought information of a biographical nature. The purpose was to determine whether there were any differences between the LA and HA owing to parental education and occupation, family structure and constellation, and various other areas such as illness and parents' absence from the children. The results of the analyses of the biographical information are presented and discussed in two sections: social class (parental education and occupation) and special experiences.

Social Class In conversations with people in the behavioral sciences we have frequently encountered the opinion that test anxiety should be positively related to indices of social class. The reasoning behind this opinion seems to be that as the social class level increases there is an increasing emphasis on academic and intellectual achievement, and such emphasis would increase the possibility that children would become anxious about such achievement. Although in the so-called upper classes (i.e., lower upper and upper upper in a Warner type classification) this emphasis may not be marked, leading one to expect a curvilinear relationship, the expectation would be that a positive relationship would be marked in a comparison between middle and lower class children. It was because such an expectation was viewed by us as too simple, and not based on a consideration of the dynamics and development of anxiety, that we emphasized in our theoretical discussion in Chapter 2 that we did not view test anxiety as necessarily being related strongly to social class. In that discussion we maintained that the test anxious school child was one who in the preschool period had experienced a parent-child relationship in which his adequacy had in one way or another been criticized. Our conception of the developmental aspects of test anxiety did not assume that the preschool parent-child relationship had as its focus the intellectual adequacy of the child, i.e., judging the child in terms of brightness. As we stated on p. 24,

What is important in our conception is that parental behavior engenders in the child self-derogatory attitudes [primarily because he perceives himself as unable to meet the expectations of the parents]. A child can develop such a self-conception in a family situation in which there is relatively little concern about level and rate of intellectual development of the child. When such a child enters the school culture, he may become test anxious even though intellectual adequacy was not a concern of the parents. We find it difficult to conceive that he does not develop some conception of the adequacy of his mind, i.e., his adequacy in meeting various kinds of problem-solving tasks. In the case of the test anxious child whose parents in the preschool period did not in any explicit or direct way focus on his intellectual adequacy, the significance of his entering the school culture is that he encounters adults who are like his parents in that they make demands, set standards, and pass judgments. The fact that these adults focus on aspects of behavior which the parents did not is less significant than their similarity of role. It would perhaps be more correct to say that such a child becomes test anxious because of similarity of role between parents and teacher, as well as the common conscious-unconscious conflicts which they engender.

From this way of viewing the problem, the relation between test anxiety and indices of social class would not be expected to be high. Our first attempt to study this relationship took place in 1954; the first

year of our research project. At that time we were working with all the children in two schools in Greenwich and seven in Milford.* One of the reasons we chose these two samples is that there were clear differences between them in parental occupation and education. The fathers of many of the children in the two schools in Greenwich were professionally trained, commuted to New York, and owned homes at a price level which would be considered far more than moderate. In Milford, on the other hand, many residents had modest incomes, a high school level of education, and were employed in small businesses or as skilled laborers.

If there is a relationship between test anxiety and occupational level, one would expect that the two populations would differ in level of test anxiety. In three of the four grades there are significant differences, the Greenwich children receiving on the average lower scores. This finding, of course, runs counter to expectations based on the assumption that test anxiety is positively correlated with indices of social class. However, since these differences may be a reflection of factors other than a social class one, it is important to note that *within* Milford there is a tendency for test anxiety to vary positively with occupational level. The average correlation (z transformation) within Milford between test anxiety and occupational level is $+12$, which, with the large number of cases, is significant at the .001 level. That this correlation is not larger may be in part a function of the data. The occupational level of the parent was obtained from information given by the parent when the child was first entered in school. In each case where such information was available, the parent's occupation was put in one of seven categories described by Hollingshead and Redlich (1958) 1 representing the highest and 7 the lowest category. There was satisfactory agreement between two raters in making these categorizations. However, it was clear that the few words (or the one word) given by the parent in describing his occupation were frequently unrevealing insofar as type or complexity of job was concerned. Although the raw data are admittedly crude and may have depressed the size of the correlation, they do not suggest that the "true" correlation between test anxiety and occupational level is more than a modest one.

The next opportunity we had to study this problem was in connection with the 32 pairs of subjects matched for grade, sex, and IQ score but differing in anxiety level both on the TASC and GASC. Since in

* It was not possible in terms of time and money, to utilize more than two schools in Greenwich. We chose these two particular schools within the Greenwich school system because we were advised that they were homogeneous in terms of parental education, income, and occupational level.

these cases a description of the fathers' work was obtained by the interview procedure, the ratings of occupational level were based on far less crude data than in the first study discussed above. Again the fathers' occupations were rated according to Hollingshead's classification, and the ratings for the fathers of the LA subjects compared with those for fathers of HA subjects, using the dependent t test. As anticipated by us, none of the differences is significant.

Another index of social class is educational level. Although the lack of differences in occupational level suggested that little or no difference in educational level would be found, several analyses were done with level of education of the parents of these matched pairs of subjects. The results of the first of these analyses are presented in Table 13. With the exception of the fathers of HA boys, the mean grade levels

TABLE 13

Mean Grade Level Completed by Parents of HA and LA Children

	Boys		Girls		Children	
	HA	LA	HA	LA	HA	LA
Fathers	9.63	12.38	11.81	12.08	10.72	12.22
p^*	< .01		n.s.		n.s.	
Mothers	11.25	11.88	11.75	11.44	11.50	11.68
p^*	n.s.		n.s.		n.s.	

* Two-tail test.

are very similar. The fathers of the LA boys completed significantly more grades of school than the fathers of HA boys. The same result is reflected in the finding that the fathers of LA boys tended to have graduated high school, whereas the fathers of HA boys tended to end their schooling before graduating high school.

It should also be noted that the fathers of HA boys tend to have less education than their wives and the fathers of the LA boys tend to have more education than their spouses. When the data were analyzed in this connection the difference tended toward significance ($p < .10$).

The above results based on the 32 matched pairs clearly support our expectation that there would not be a strong positive relationship between test anxiety and indices of social class. In fact, the finding of a lower educational level for fathers of HA children (particularly of HA boys), a level lower than that of their spouses, clearly contradicts a hypothesis of a strong relationship between test anxiety and indices

of social class. It might be maintained in view of the educational data that the fathers of HA boys are less intelligent than the fathers of LA. However, the fathers of HA boys seem intelligent enough to hold jobs of apparently equal difficulty. In several cases the fathers of HA children left school under the pressure of economic strain. A reasonable hypothesis suggested by these data is that the effect on children's anxiety of the different educational attainments of fathers of HA and LA children is less a function of socioeconomic factors than of the personal significances of the fathers' educational experiences for themselves and, as a result, for their sons particularly. A father who has not completed high school may view himself as being intellectually inferior and may develop concerns about his children's ability to attain academic success. In such a case the interaction of strong desire for success for his son with doubts about his son's ability to achieve such success may, in as yet undetermined ways, contribute to a high level of anxiety in the son. In this connection it is relevant to note that when asked what these feelings would be if their child should not finish high school and college, parents generally gave the stereotyped answer that being graduated from high school was the minimum level of success. With respect to college the answers tended to vary according to sex of the child, e.g., "He's a boy and he'll need a college education and I'd feel badly if he didn't finish college," or "I'd like her to go, but if she takes a secretarial course and gets a job, I'll be satisfied." Clearly the pressure for higher academic attainment is greater for boys. When such pressure is exerted by a father who feels inadequate about his own educational attainments and has doubts about his son's abilities, one has a parent-child relationship conducive to the increase of anxiety in the boy.

Relevant to the focus of this section is the result of an analysis of information pertaining to whether or not the mothers had worked since the subject was born. Although clinical experience abounds with examples of the anxiety producing effects of various separation experiences, we did not feel justified in the theoretical discussion in Chapter 2 in making predictions about specific separation experiences. What was implied in our theoretical discussion was that the quality of the parent-child relationship associated with separation was as important as the fact of separation in determining its effects. Although we made no predictions about specific separation experiences, we included questions about mothers working in the hope that the data might provide clues about the direction of future research, e.g., whether in future research it might be profitable to focus in depth on the significances of a mother's working after her child has been born—a focus not possible

for practical reasons in the present interviews. It was our expectation that if any differences were found between mothers of HA and LA children, it would be the mothers of HA children who would more frequently answer "yes" to the question i.e., their children have experienced a type of separation characterized by irregular and inconsistent availability of the mother's help.

The results of this analysis are shown in Table 14. It is clear from these results that the mothers of the HA boys tend to have worked

TABLE 14

Mothers Working since Birth of Subjects

Mothers of Boys				Mothers of Girls			
HA		LA		HA		LA	
Worked	At Home	Worked	At Home	Worked	At Home	Worked	At Home
10	6	4	12	6	10	9	7
$p < .05^*$				n.s.			

* One-tail test

since their children were born more than did the mothers of the LA boys. The fact that HA and LA fathers were about equal in occupational level does not suggest that there was greater economic pressure to work in the case of HA mothers. Actually, in several HA cases it was the definite impression of the clinician conducting the interviews that the mothers had a strong personal rather than economic need to work. The above results cannot be considered as other than suggesting that in the case of HA boys the fact that their mothers work may reflect a kind of parent-child relationship conducive to heightened anxiety in the child.

Before concluding this section it is important to note that the major differences found between anxiety groups were primarily between HA and LA boys. The lower educational level of HA fathers, the disparity between their educational level and that of their spouses, and the greater incidence of working mothers—these three different findings differentiated between HA and LA boys. The direction of these findings not only supports our general prediction that more "unfavorable" factors would be found among HA than LA children but it suggests that the sources of anxiety are different for boys and girls, a question which we take up in Chapter 9.

Special Experiences There are obviously many different kinds of experiences of an acute, chronic, or traumatic nature which could increase the strength and duration of the anxiety reaction. Illnesses, separation from parents, deaths of persons close to the children, births of later siblings, reactions to receiving injections—these and other types of experience may have profound effects on the anxiety level of children. However, for any one of these experiences we did not feel justified in making predictions about HA and LA children primarily because our theoretical orientation assigns a great deal of weight to the dynamics of the parent-child relationship in which a particular experience is embedded. Put in another way, we assumed that each of these experiences has some kind of effect on a child but we did not feel justified in assuming that they necessarily resulted in increasing and maintaining a high anxiety level. It might be more correct to say that we proceeded on the assumption that if differences were obtained between HA and LA children in the frequency of certain experiences, e.g., HA children having had more illnesses than LA children, it would be viewed by us as supporting our general prediction that HA children, in contrast to LA ones, had had more unfavorable experiences in development. If such differences were not obtained, it would not be viewed as contradicting the prediction but would emphasize in depth differences of the parent-child relational matrix in which illnesses occur.

Illnesses Parents were questioned specifically about the illnesses of their children as well as any accidents which had befallen them. Accidents and illnesses were then divided into the severe or nonsevere variety. Severe accidents or illnesses were those involving acute trauma or chronic conditions requiring an operation, lengthy confinement, or unusual precautions. In total number, the HA boys have significantly more illnesses and accidents than their LA counterparts and part of this difference is due to their having more severe illnesses, although the latter does not attain significance by itself. For girls, the findings do not differentiate between the LA and HA children. In fact, the trend is reversed, the LA having more illnesses and more of the severe types than the HA girls. The girls, however, have fewer of the severe kind than the boys.

The findings for boys suggest that frequent illness, including severe acute and chronic types, is a factor tending to reinforce the anxiety reaction. Accidents and illnesses pose threats to body integrity and frequently result in inactivity and physical restraint being imposed on the child. For boys these two factors can evoke concern and anxiety about their effectiveness in the masculine role, which is one of being

active and able to use one's body vigorously. For example, being unable to engage in sports limits the self-esteem of a boy actually and potentially. He not only cannot play now, but dreaming of himself as a future football star is less realistic and requires the assumption that the physical cause of his inactivity will be removed. For girls the threat of having to be less active does not conflict as strongly with the cultural expectations of a girl's role and behavior. Clear pressure to be capable of strong physical exertion is not present for girls, so that being inactive for a short period or being less active in the future does not arouse as intense feelings of loss or possible loss of self esteem as in the case of boys. It is also significant that the highest number of severe illnesses sustained by any of the girls was two five less than the highest number for any boy. These points suggest that as a group illness may be a less important factor in the development of anxiety in girls than in boys.

Separations In our theoretical discussion in Chapter 2 we characterized the parent HA child relationship as one in which the child's hostility toward the parent could not be expressed at the same time that his dependency on his parents was encouraged and reinforced. If one assumes this characterization to be true one might expect that separation from parents would be particularly stressful for HA children because it could "feed" the hostility at the same time that dependency needs are denied gratification. If a child has had hostile and destructive fantasies in relation to parents, absence of a parent may have the dangerous effect of bringing the unconscious or conscious hostile wishes nearer actual fulfillment. Since in this study we were dealing with a group of anxious children, one might predict that they probably have experienced more separations from their parents separations which are one factor in maintaining their anxiety level. However, one might also expect that there is no difference between HA and LA children in frequency of separations but that the important factor is how the separation is handled and experienced. Another important consideration dictating caution in prediction is that our description of the HA parent is compatible with the expectation that they have problems in separation, i.e., their tendency to keep the child in a dependent relation with them reflects their own anxiety about separation. From this standpoint one might expect that such parents would have difficulty absenting themselves from their child.

For the reasons above we made no predictions about differences between HA and LA children in separation experiences involving parents. The frequency of mothers' and fathers' overnight separations from the subjects was noted and the significance of differences between

possible, of course, for an event to impinge on and affect a child without the child's grasping the nature of source of the problem. The death of a relative or the birth of a new baby can upset a mother or father, whose emotional state or behavior can in turn affect an infant or an older child. Because a child does not say "I hate the new baby" does not mean the event presents no problems for the child. Conversely, it is possible that a child who says "I hate the new baby" may be able to resolve feelings of aggression and conflict about the baby more effectively than another child who may feel the same way but is afraid to talk about his emotions to his parents. At any rate, the stereotyped answer of "no problem" was the rule and it may be that had the interview pressed for details meaningful differences between the HA and LA children in their reactions to later births of siblings would have been found. It may also be that the mothers of HA subjects, rated as more defensive, used this opportunity to censor or maintain repression of signs of upset and anxiety shown by their children when later siblings were born.

It is important to emphasize that the above discussion was not intended to "explain away" lack of differences between the HA and LA groups. As we indicated earlier, we did not feel justified in making specific predictions about frequency of certain experiences or the specific types of responses to them. The purpose of the above discussion was to indicate how inordinately difficult it is to evaluate alternative explanations of findings when it is known that one set of interviewees (i.e., mothers of HA children) are distorting their reports in unknown ways and to unknown degrees. Just as we concluded in Chapter 5 that the problem of evaluating self-reports in response to paper-and-pencil personality questionnaires has in the past been presented in too simple a fashion, we have to come to a similar conclusion about self-reports obtained in a face-to-face interview in which personally significant material is the focus of the interaction.

SCHOOL EXPERIENCES AND ADJUSTMENT

The information concerning the children's school experiences was obtained from the parents primarily in the first interview. Questions were included which asked the parents to report directly on the amount and nature of any anxiety reactions their children may have shown. When the parents' answers to these direct questions were analyzed, the LA children were described as less anxious than the HA children, but the differences were not significant. At this point it is necessary to bear in mind that the HA children's mothers were found

to be more defensive than the LA children's mothers. It is distinctly possible that direct questions enable the parents of HA subjects to respond defensively with ease. Because in such questions complexities are eliminated and the contrasting social desirabilities of being anxious and unanxious are clear, the parents who are motivated to deny anxiety shown by their children can do so easily and without a long discussion in which their denial might be uncovered. For example, one of these direct questions asked the parent whether the child was (a) not at all afraid, (b) a little bit afraid or (c) quite a bit afraid of going to school on the first day of kindergarten. With the contrasting evaluation that might be made of parents giving the (a) and (c) alternatives, parents of a HA child who had been anxious the first day could easily censor that fact and say that the child had been "not at all afraid" or reduce their own emotional tension by saying "a little bit afraid." In the case of the LA child who had not been afraid, the parent might feel that it is natural for a child to feel at least some apprehension about school and also report the child to have been "a little bit afraid." This might have been said in order to appear reasonable to the interviewer.

Many of the mothers indicated that their children felt or acted "excited" on the first day of school. This excitement can be considered to contain some tension or wonder about what will happen in the new situation, or the excitement can be regarded only as happiness and an eagerly pleasant anticipation about going to school—the growing up, playing with toys, being with the other children. The parent taking the latter view regards starting kindergarten as causing no stress or anxiety in children. If such a parent's child were anxious, the child might well feel a need to hide the anxiety from his parents so they would not see him as weak or babyish. In that way, the child would not feel as free to communicate with the parent and could not receive as effective help from the parent with his feelings and conflicts as when the child feels that the parent senses that his "excitement" includes some tension and worry about his effectiveness in this new and very important situation.

This discussion leads to several questions about the children's starting school for the first time. The parents' answers to direct questions do not differentiate significantly between the HA and LA children with respect to feeling anxious. In line with the finding of greater defensiveness among mothers of the HA, it is interesting to note that in describing their child's first day of school, the parents of the LA boys gave longer accounts than were given for the HA boys, and the parents of the LA girls discussed the effective elements of that even more fully than the parents of the HA girls. The parents of the latter tended not

parents of LA and HA children determined by the use of χ^2 (two-tail test) The results indicated that fathers of the LA boys were away overnight more than fathers of the HA boys were away from their sons ($p < .05$) The findings are in the same direction for the fathers of the girls and the mothers of both the girls and the boys

The relatively low frequency of separations experienced by the HA children suggests that the possibility that the parents of these children themselves have problems in separation may have some merit, a possibility which would also be in accord with clinical observations that children with separation anxieties tend to have parents with similar problems Although we are not aware of any statistics bearing on the incidence of this type of separation experience in the general population, it is our opinion that the incidence among HA children (who varied in age at the time of interview from 8 to 11 years) is absolutely as well as relatively low In any event, the results do point to the direction of focus of future interview studies Such studies should focus in depth on the psychological significances of separation for child and parent The relatively high frequency of separation experiences among the LA children also suggests that separation experiences *per se* do not lead to high anxiety, a finding which suggests the importance of determining how the experience is handled and its psychological significances for those concerned

The interviews contained questions about other "special" experiences reactions to deaths of relatives or people close to the subjects, to births of later siblings, to receiving injections, and the nature of early eating and sleeping patterns In none of these areas were significant differences obtained between LA and HA children There are at least two possible explanations for the lack of differences First, there is in fact no difference between the groups in the frequency of occurrence of the experiences Second, there is no difference in frequency of occurrence but there is a difference in how such experiences were experienced by the child and handled by the parents a possibility which could not be evaluated by our interviews which were survey rather than depth interviews Third the experiences sought by the questions may have been more subject to the effects of defensiveness discussed earlier The greater defensiveness of the mothers of HA subjects may have resulted in greater distortion of recall and report of the child's behavior in relation to reactions to deaths of relatives births of later siblings, receiving first injections, and early eating and sleeping patterns than when the parents were asked to report what illnesses and accidents the child had experienced For example, LA and HA children experienced deaths of relatives and people close to

them with equal frequency and the accounts of the parents' discussions with and explanations to the children were similar. However, it seemed to the interviewer as if only mothers of LA children were emotionally moved when answering these questions. These mothers did not lose control, they were not parading feelings, but rather the incident was recalled vividly and led to their spontaneous expression of sadness, without apparent embarrassment. This is not to say that the mothers of the HA did not feel the same loss, but that their need to restrain expression of their feelings prevented a spontaneous reaction. This directly bears upon the issue of defensiveness in the interview, because in order to maintain control of their own feelings it is distinctly possible that the mothers of the HA tended more than those of the LA to omit, by repression or censoring those aspects of the experiences which might have reduced their restraint of expression of emotions. Thus, in reporting about deaths of relatives, the tendency for the mothers of the HA to be more defensive than the LA children's mothers may have been a possible cause of the mothers of the HA giving stereotyped answers obscuring significant problems experienced by the children. This same tendency to give stereotyped answers (e.g., "average," "good," or "no trouble") may have been present when the parents gave information about their children's reactions to births of later siblings, reactions to receiving their first immunity inoculations, and eating or sleeping patterns. In our previous discussion of defensiveness we suggested that our results pointed to the possible need in the parents of HA children to present a "socially acceptable" picture. In some instances this may mean that attitudes reported by these parents should fall in the "ideal" or extreme position. However, in describing a "socially acceptable" child or behavior of their own, a defensive mother might repeatedly say that her child is "average" or "no different" from other children. In other words, if her behavior, or her child's personality or behavior, is described as falling at the median, she is safe from criticism or the need to talk about painful material.

Concerning births of later siblings, most parents described their children as "excited," "happy," and "looking forward to" the new baby. In fact, so few indicated their children as having any problem one might be tempted to think none existed for most of the subjects. The interview did not provide for urging the parents to discuss why the children were excited and with what emotions they were excitedly looking forward to this event. Another interesting phrase used by some mothers was that the child "was too young to know what was happening, or what it meant." (This was also said about deaths of relatives when the child was ^{one} year old or younger.) It has to be considered

to mention any affect of their own or of their daughters in telling about their first day of school. These findings present a picture of greater defensiveness shown by the mothers of the HA children—though the mode of defense was different for the parents of girls as compared with those of boys. While it was not necessarily anxiety about which they were defending, it can be assumed that what was being omitted or glossed over was some covert or overt elements of their own or their children's behavior which the parents viewed as unacceptable or undesirable.

This raises the question of whether the parents of the HA children ever reported them as more anxious than the LA children in response to a direct inquiry about anxiety shown by the children with respect to school. Though these items generally yielded predicted, but non-significant results, an exception occurred in response to the following direct question: "When S is out of school because of illness would you say S worries (a) a lot, (b) a little, or (c) not at all about missing school lessons?" This question was asked in the first interview after the parent had reported the child's illnesses. The results showed that the HA child worries more than the LA child about missing lessons because of illness. That was found for both the boys and the girls, but a significant result was obtained only for the girls.

At this point one might ask: since the mothers of HA children were found to be more defensive, perhaps especially on direct questions, why does this particular direct question yield a significant result and not the others? To this query it might be noted that a child's worry about missing lessons because of illness may well be easier for a parent to observe because the child is home with the mother for at least a day when the worry is being felt. This provides an opportunity for the anxiety to develop in the child and to be noted by the parent. A child's worry about lessons while he is in school is not easily known by the parents unless the child tells them about it. After being worried for a few hours in school, he may well want to avoid discussing his concern and prefer to seek a period of pleasure when he comes home.

If it is true that the lack of differences we have noted above may be due to the defensiveness factor, significant differences should obtain from analyses of answers to questions which do not in a direct way involve words like "anxiety, worry, or fear," i.e., questions which on *a priori* grounds would not seem to arouse defensiveness in mothers of HA subjects or enable them easily and directly to deny anxiety in their child. A variety of significant results were obtained and these are presented in Table 15. These findings are consistent with the theoretical discussion in Chapter 2, indicating as they do that the LA boys commun-

TABLE 15

Differences in School Experiences and Adjustment
of HA and LA Boys and Girls

	Boys				Girls				Children			
	HA		LA		HA		LA		HA		LA	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Child talked a lot about school be- fore started p^*	3	13	8	8	9	7	0	10	12	20	14	8
	<.10				n.s.				n.s.			
Child tells parents a lot about school p^*	6	10	11	5	7	9	0	7	13	19	20	12
	<.10				n.s.				<.10			
Parent uncertain confronted about child start school p^*	11	5	4	12	5	11	3	13	10	16	7	25
	<.025				n.s.				<.025			
Child felt very positive about start school this year p^*	7	9	13	3	12	4	13	3	10	13	26	0
	<.05				n.s.				<.10			
Child had trouble learning to read p^*	10	6	5	11	7	9	10	6	17	15	15	17
	<.10				n.s.				n.s.			
Parent felt teacher understood and handled child very well p^*	8	8	13	3	12	4	10	6	20	12	23	9
	<.10				n.s.				n.s.			
Parent mentions affect in telling of first school day p^*	15	1	13	3	9	10	11	5	21	11	24	8
	n.s.				<.10				n.s.			
Child started Sunday school younger than mate p^\dagger	2	8	8	2	5	5	5	5	7	13	13	7
	=.053				n.s.				=.095			

* χ^2 , one-tail test.

† Two-tail sign test.

icated more freely about school with their parents, had less trouble learning to read, and felt more positive about returning to school after vacation. Also, it is shown that the HA boys' mothers felt more conflict and uncertainty when their sons started kindergarten and were of the opinion that the teachers handled and understood their sons less well than the LA boys' mothers felt their children were handled and understood. The implication is that the HA boys experienced more difficulty, had less help with their problems, and felt less freedom to seek the help they needed in comparison with the LA boys. Whether the HA boys in fact were understood less well than the LA boys is obviously important if true, because it suggests their problems would have remained or been increased as a result. If, in fact, the teachers handled the HA and LA equally effectively, the obtained result suggests a displacement of feelings of guilt or responsibility by the parent which permits her to regard the teacher as a source of the child's problems.

It is interesting to note that the LA boys tended to start Sunday school at an earlier age than their HA mates. We included this question because we were interested in the *first* school experience of a child, and not because we expected any differences in age and duration of the preschool experience. The obtained result does suggest that being in Sunday school earlier may provide a type of experience which can remove unfamiliar elements from the experience of entering kindergarten and learning in school. In the light of our discussion in a previous section of the finding that parents of HA children have been away overnight less frequently than parents of LA children, one might speculate about the possibility that the finding about Sunday school may reflect separation problems of the parent.

ANXIETY AND EMOTIONAL ADJUSTMENT

Anxiety. Of obvious interest to us was one particular question which came near the end of the second interview. The parent was asked to indicate whether or not the child had manifested or experienced any of 13 fears and anxieties, similar to the kinds of items contained in the GASC. We predicted, of course, that the HA children would be described as having more of these anxieties than the LA children. This prediction was made before we were aware of differences among mothers of HA and LA children in degree of defensiveness in the interview situation. In light of the defensiveness of the HA children's mothers it is not particularly surprising that they report their children as showing approximately the same number of fear or anxiety reactions

as the parents of LA boys and girls reported for them. This finding in response to direct inquiry about the subject's anxieties parallels the result obtained when the mothers were asked directly about their children revealing signs of anxiety about school or fear of tests.

It is important to note that even if we were unaware of differences in defensiveness, we would still be justified in considering this lack of differences as suspect. For one thing the children of these parents strikingly differed in how they answered the TASC and GASC, the HA children admitting to much more anxiety than the LA children. These same children had been studied in four different situations (learning, Rorschach, figure drawing, and classroom) and behavioral differences had been obtained in line with predictions based on the assumption that the differences in scale scores reflected differences in the frequency of experience of anxiety. Put in another way, the fact that previous to the study of the 32 pairs of children we had reason to believe that the anxiety scales had an encouraging degree of validity, in addition to obtaining predicted differences between the 32 matched pairs of HA and LA children, would have been grounds enough for questioning the lack of differences in parental report.

In terms of the theoretical discussion in Chapter 2 it is possible to view the lack of difference in parental report of children's anxiety less as a function of defensiveness on the part of mothers of HA subjects than of a lack of communication between themselves and their children. In that discussion we maintained that in the case of the anxious child the development of his relationship with his parents was such as to make it difficult for the child to express feelings which might be negatively evaluated by the parents. The expression of such feeling might involve some form of punishment as in the case of aggression, or a nonsupportive, nonunderstanding response as in the case of anxiety. In any event, it is possible that the HA child's mother may describe her child as unanxious less because of a defensive need to picture her child in a favorable way to the interviewer than because the child does not communicate to her the nature and strength of his anxiety. There were times when, despite some flagrantly defensive behavior on the part of the parent, it was difficult to understand the source of distortion in parental report. The clearest instance was the parent of a HA child who responded "no" 13 times without taking a moment to consider her answer or attempt to recall relevant experiences. It was as if the parent was not only saying "My child has never been afraid of anything at any time," but also "I am not going to take any time to recall if I am mistaken." Although this parent acted in what may be termed a defensive manner, one also may wonder if this parent could detect

anxious behavior in her child or allow him to express such feelings to her. It was as though the mere thought of her child's being in any way afraid was so threatening to her—so anxiety producing in her—that a defense was needed against even the covert admission of the child's vulnerability. If this is the case, in even a milder form among mothers of HA children in general, it certainly would follow that in the day to day interactions with their children they would tend to deny (to themselves) the existence of worries or fears in their children. This would constitute a formidable barrier against the child's communicating his feelings to the mother, and would render unavailable to the child a prime source of solving his emotional problems.

Modes of Expressing Aggression In the theoretical discussion in Chapter 2 we emphasized that the expression of aggression would be particularly conflictful for HA children. In the second interview the parents were asked to indicate whether or not their child, when angry, (a) gets sulky and silent, (b) hits people, (c) throws things, (d) talks angrily or uses any other method of expressing anger. The results show that the LA children of the matched pairs have more modes of expressing anger than their HA mates ($p < .025$), the results being equally significant for both sexes. As we expected, the LA children can express anger and aggression more freely, at least to the extent they are reported to have different ways of venting such feelings. The HA children were often described as "not doing any of those things" or using only one of the modes of showing anger. From the elaborations of mothers of the HA children to this question one gets the impression that they frown upon the expression of aggression, i.e., they consider it undesirable. Some LA children's mothers, in contrast, specifically indicated that while they might not like the expression of aggression in their children they realized that they could not adopt the attitude that such expression was "bad."

We do not consider the results from this single question as other than a suggestion that our hypothesis about aggression has merit. We shall return to this problem in the next chapter, which is concerned with personality variables.

Over-all Measure of Unfavorable Environment and Experience When in the course of analyzing the interviews we became aware of the factor of defensiveness in the interview and how this seemed to be operative in the case of questions of a direct nature, we resorted to a more global measure, i.e., a single measure which would encompass or reflect all of the information obtained in the interviews. Of equal importance was our desire for a measure which would allow us to test

the general hypothesis that HA children in contrast to LA ones will have experienced more unfavorable events situations and relationships. The measure used was based on the reports written by the interviewer after each interview. It will be recalled that these reports were written without knowledge of whether the mother was the parent of an HA or LA child. The reports were spontaneous comments about the interviewer's reaction to the parent, the interview, and the material therein. The average length of each report was $1\frac{1}{2}$ to 2 type-written pages.

We considered these reports to reflect the clinician interviewer's overall impression of a particular child in a particular family. Consequently, we assumed it was possible to evaluate the interviewer's reports for qualities or experiences in the child, the parents, and the child's environment which would reflect broadly speaking the same meaning as a "favorable/unfavorable" score. The interviewer rated each sentence in his reports in terms of its mitigating or strengthening effects on the anxiety reaction, or its indication of the presence or absence of positive and negative qualities and factors in the child, parents, environment, and experiences which pertain to or affect the subject's emotional adjustment and development. Thus a positive rating for a sentence would reflect adequate or successful adjustment by the child or some environmental factor or experience promoting such an adjustment. A negative rating would indicate difficulties in the child's efforts to cope with his problems or events and qualities in the parent or child which would reinforce the anxiety reaction. A sentence could contain both positive and negative elements of about equal strength and in that case it was rated both positive and negative. Sentences which had no bearing on the subject's adjustment were rated neither positive nor negative. Finally, for each child the number of negative ratings was subtracted from the number of positive judgments to yield an overall "favorable/unfavorable" score. An "unfavorable" score designated by a minus sign occurred when there were more minus than plus ratings, and a "favorable" score which had a plus sign resulted when more sentences were rated positive than negative.

In this manner the interviewer and an independent judge rated the sentences in the reports written for four pairs of boys and four pairs of girls—or 16 of the 64 subjects. When the judges' ratings were compared with the interviewer's judgments, it was found that total agreement was present for reports of first interviews on 263 or 78 per cent, of the 338 ratings each judge had made. Of the 75 disagreements, only four involved completely opposite ratings, positive by one and nega-

tive by the other rater. For the reports of the second interviews, they agreed completely on 181, or 75 per cent, of the 241 sentences. Combining these, there was total agreement on 444, or 77 per cent, of the 579 sentences written in the 32 reports for these 16 subjects. Only six sentences involved ratings which disagreed completely, positive by one and negative by the other rater. For these 16 children, the "favorable-unfavorable" scores computed from the interviewer's ratings were correlated with the same scores computed from the other judge's ratings of the individual sentences. This was done for the scores obtained from each interview separately and combined. The interjudge correlation of these scores is $+ .94$ in each case, indicating a high degree of agreement between judges as to over all favorableness of their ratings for these subjects for either interview or both in combination.

The subjects' "favorable-unfavorable" scores computed from the interviewer's ratings were then compared for the 32 pairs of HA and LA children. The differences in these scores for the matched pairs were obtained and subjected to the dependent t test. The results, presented in Table 16 showed that the LA subjects' reports were rated signifi-

TABLE 16

Differences in "Favorable-Unfavorable" Scores of HA and LA Children

	Interview I		Interview II		Interviews I & II	
	More Favorable	t	More Favorable	t	More Favorable	t
Boys	LA > HA	2.815 *	LA > HA	2.188 †	LA > HA	3.125 *
Girls	LA > HA	3.073 *	LA > HA	3.104 *	LA > HA	4.135 *
Children	LA > HA	4.123 *	LA > HA	3.184 *	LA > HA	4.601 *

* $p < .001$

† $p < .025$

cantly more favorably than those of the HA children. In other words, in comparisons of the HA and LA matched pairs the LA boys and girls were described by the interviewer as having more favorable qualities with respect to their adjustment, experiences, environments, and relationships with their parents. It seems reasonable to conclude that the LA child generally would have experienced mitigation or reduction of his anxiety reactions more than the HA child.

An important question concerns whether the HA subjects tended to receive more negative than positive ratings, and the LA subjects more

positive than negative judgments. Such a finding would suggest that the interviewer had been impressed with factors that reinforce anxiety as opposed to those that reduce anxiety for the HA children, while describing the reverse for the LA boys and girls. To determine whether this was so, the algebraic signs of the subjects' "favorable-unfavorable" scores were noted and subjected to χ^2 tests. Findings were obtained separately and together both for boys and girls, as well as for the first and second interviews. The findings are significant for the boys in the predicted direction. While they are in the predicted direction in each separate analysis, the results are not significant for girls. That is, there was a significant tendency for the reports of the LA boys to receive more positive than negative ratings, but the HA had more negative than positive judgments made of the sentences in the interviewer's reports. In the case of the girls, the results were in the same direction, but the difference was not significantly different from what could be expected by chance alone. In the case of the boys, the LA member of a pair tended not only to have a more favorable score but also to have a plus or "favorable" score while his mate tended to have a minus or "unfavorable" score. Among the girls, the LA member of a pair had a more favorable score, but often both members of the pair had plus or "favorable" scores or both had minus or "unfavorable" scores.

The findings shown in Table 16 offer strong support for the general hypothesis that HA children, in contrast to LA ones, have experienced more unfavorable events, situations, and relationships. The nature of the measures on which these findings are based does not allow us to evaluate some of the more specific hypotheses concerned with the nature of parent-child relationships. The importance of the findings lies in the support they give to the "flavor" contained in the bulk of our hypotheses, i.e., that the development of the HA child is of a kind which strengthens rather than mitigates the anxious reaction.

Parental Check List Ratings. The check list ratings by the parents were discussed in the section on defensiveness, but the results for particular items have significance for the emotional adjustment of the HA and LA children. It will be recalled that the LA were rated more favorably than the HA on those 16 items considered by judges to have a clearly favorable value at one extreme and a clearly unfavorable value at the other. The other general finding was that the fathers' ratings but not the mothers' differentiated between the LA and HA subjects as predicted.

All the significant differences between the LA and HA boys and

TABLE 17

Significant Discriminations by Fathers and Mothers between
HA and LA Boys and Girls on the 25 Check List Items

Fathers' Ratings		Mothers' Ratings		Parents' Ratings	
Boys	<i>p</i>	Boys	<i>p</i>	Boys	<i>p</i>
LA > HA		LA > HA		LA > HA	
Mature	02	Leading	06	Mature	02
Responsible	07	Feeling superior	07 *	Leading	03
				Ambitious	03
				Feeling superior	04 *
				LA < HA	
				Affectionate	92 †
Girls	<i>p</i>	Girls	<i>p</i>	Girls	<i>p</i>
LA > HA				LA > HA	
Optimistic	07			Responsible	10
Responsible	09			Relaxed	09
LA > HA				Adaptable	06
Generous	97 †			LA < HA	
				Generous	98 †
Children	<i>p</i>	Children	<i>p</i>	Children	<i>p</i>
LA > HA		LA > HA		LA > HA	
Mature	02	Feeling superior	03 *	Mature	07
Optimistic	08			Responsible	04
Responsible	02			Feeling superior	07 *
LA < HA				LA < HA	
Generous	92 †			Generous	98 †
Affectionate	95 †			Sensitive	09
Neat	10 *			Neat	06 *

* No prediction made and *p* values are based on two tail tests

† Result is opposite from predicted

girls are presented in Table 17 The different items on which the LA were rated more favorably than the HA include the following

- 1 Mature-immature
- 2 Optimistic-pessimistic
- 3 Responsible-avoids responsibility
- 4 Tense-relaxed
- 5 Follows others-leads others
- 6 Ambitious-unambitious
- 7 Adapts to changes-set in ways
- 8 Sensitive (easily upset)-not sensitive

It is of interest to note that although on the check list item "anxious unanxious" the HA are not rated as significantly more anxious than the LA children, the HA are rated by their parents as less relaxed, less optimistic, and more sensitive ("easily upset") than are the LA children by their parents. It seems reasonable to suggest that terms like tense, sensitive, and possibly pessimistic are not unrelated to a term like anxiety and may serve as euphemisms for that more emotionally loaded term. This may be another instance of what we have said in previous sections: direct questioning of the parents of HA children may arouse far more defensiveness and hence be far less revealing than indirect questioning.

It will be noted that the LA children were rated as less generous and less affectionate than HA subjects. While the LA were rated as "definitely" generous and affectionate, the HA tended to be rated as "very" generous and affectionate. These unpredicted findings may be explained in at least two ways. If HA children are indeed very generous and affectionate, it may reflect a strong need for approval from others, which is a reflection of a concern about the consequences of not receiving approval. It may also reflect how the parents of these children prefer or need to see their child. The two explanations are certainly not mutually exclusive.

Although the findings for the check list show, as predicted, the LA children to be rated more favorably than the HA children, we are aware that a limitation of these results is that we cannot be sure just how the HA and LA parents defined the terms which were used in the check list. For example, the LA mothers rated their children as feeling more superior than the HA mothers said their children felt: a result which was significant for the boys but not the girls. In fact, the only other discrimination between the LA and the HA made by the mothers was on a similar item where they judged the LA as tending to lead others more than the HA boys. It is possible that HA boys' mothers may not have been motivated to respond as defensively with respect to the subjects' feelings of superiority or leadership behavior as compared with feelings of anxiety. The HA boys' mothers often indicated that their sons are not leaders but hastened to add that they are not followers either. That is, saying a child either does not feel superior or even feels inferior is not an admission by the parent that the child is inferior. In fact, "feeling superior" can have negative connotations and be something to prevent in a child. If one regards "feeling inferior" or "not leading" as connoting modesty or not being bossy, it is possible to regard those two qualities as acceptable or even desirable for a child.

Child-Rearing Attitudes and Practices. This scale consisted of 39 items selected from the PARI (Schaefer and Bell, 1958). These items, in contrast to those on the check list, tend to be long, complex sentences reflecting parental attitudes toward a variety of child-training practices. Considerations of interview time precluded using the entire PARI scale. We did not employ the entire scale because we felt that there would not be marked differences in the direction in which parents of our two groups would answer many of the items. The content and style of formulation of the items were not, in our opinion, likely to produce differences in the sense that parents would take basically different positions on very many of the items. We did expect that while both groups of parents would tend to agree or disagree with a statement, the HA parents would tend to make more extreme ratings of agreement and disagreement than would LA parents. This prediction was based on the consideration, implied in our discussion in Chapter 2, that the HA child is one whose parents have strong feelings of what is acceptable and not acceptable in a child's behavior, feelings which tend not to take into account the needs and feelings of the child. Put in another way, the HA parents tend to leave their children little "room to maneuver" in terms of range of what is acceptable and nonacceptable—a restricted range and standard of behavior which produce conflict in the child, frequently leading to an increase in aggressive feeling and action—producing negative evaluation from the parents.

A second prediction we felt justified in making was that the discrepancy between ratings by the father and mother of an HA child would be greater than the difference between ratings by parents of an LA child. This prediction is not contained or implied in our theoretical discussion but is simply based on our clinical experience, which suggested that conflict between mother and father in attitudes about child rearing is very frequently found in anxious children.

In order to determine whether the LA parents rated more moderately and differed between themselves less than the parents of the HA subjects, analyses were made of the comparisons of ratings made by the parents of the matched pairs of HA and LA children. The analysis of moderate and extreme ratings was done for the various parent-subject groupings. Both the mothers and fathers of the HA girls tend to make extreme ratings whereas the parents of the LA girls tend to make more moderate ratings. The findings show no difference between the HA and LA boys.

For the analysis concerning discrepancies, the sum of the discrepancies between the parents of each subject was obtained for all

38 items and comparisons were made between these total mother-father discrepancy scores obtained for the matched pairs of HA and LA subjects. This was done for the boys and girls separately and combined. (In the analyses for the boys and all the subjects the findings were also obtained with the parents of one pair of boys omitted because the mother and father of that HA boy achieved forced total agreement between themselves on all their ratings—something no other mother and father came close to accomplishing. In passing it is interesting to note that it was in HA children's parents who apparently felt a need to present to the interviewer a picture of complete parental agreement about child-rearing matters.) The predicted result was obtained for the boys but not the girls.

An interesting pattern appears in the above analyses. First the HA girls' parents make more extreme ratings than the parents of the LA girls, but there is no difference between the HA and LA boys' parents in that respect. However, the parents of the HA boys disagree more between themselves than do the parents of the LA boys, while the parents of the HA and LA girls do not differ in this analysis. Both of these findings are consistent, in part at least, with our predictions that extreme attitudes as well as marked differences between parental attitudes characterize the parents of HA children.

It is important to note that the "extreme" or "strongly" held attitudes are in the socially acceptable direction. For example, parents of HA children are strongly against harsh treatment and forcing children to grow up too fast and strongly in favor of practices like having children tell parents about their problems and parents helping children with their problems. It was the sense of our prediction that to adopt an extreme position on these kinds of items may reflect not only virtue but the sin of failing to take into consideration instances in which these extreme positions should be modified. For example, a parent may, in reality, have to be strict or become angry when reacting to behavior which seriously endangers the child or others. Also, if one always avoids forcing a child to grow up too fast, the possibility may be increased of permitting a child to remain immature too long. (It is interesting to note that LA children were rated as more mature by their parents than were HA children by their parents.) It may be very good to encourage a child to talk with his parents about his problems, but sometimes this might involve considerable difficulty or even a painful loss of self-esteem for the child. It should be pointed out that while the HA parents feel very strongly that children should be encouraged to talk about their problems, the HA children, especially the boys, are described by their parents as telling less about school than

the LA are reported to discuss with their parents, in spite of the fact that the HA have more problems, apparently, than the LA have both in and out of school. It might be said that it is one thing for a child to feel free and motivated to relate problems and failures to parents but quite another for him to feel that he must report all difficulties. If the child feels compelled not to keep secrets from mother and father, this can create the dilemma of his feeling guilty about not revealing a failure but at the same time experiencing anxiety about the loss of parental regard if they are told the secret. Finally, there is the extreme favoring by the HA parents of their helping their children with problems. Again, it is only realistic that children need help with problems, but help with every problem—or even every difficult problem—could lead to the child's feeling anxious about his adequacy in solving them himself. A child may feel he will fail when he does not have help even when the solution is otherwise within his grasp. Such a situation would tend to arouse feelings in the child that he must be dependent upon the parents and fear that if he expresses resentment he will lose the assistance he regards as essential. It is quite different if children feel free to try out their own solutions and go for help when they feel they need it, so that they feel some readiness to face situations where independent effort is required. Implicit in parents helping their children with all problems is their unexpressed opinion or fear that the child will not be sufficiently capable without their assistance.

CONCLUSIONS

Of all the findings we have presented and discussed there are two which are especially noteworthy because of their implications for research methodology as well as for an understanding of anxiety in children. The two findings are (1) the ratings by fathers on the adjective check list discriminate predictably between HA and LA children whereas the ratings by mothers do not, and (2) the mothers of HA children (particularly boys) were more defensive in the interview (i.e., they appeared to the interviewer as distorting or censoring their communications) than mothers of LA children. When one considers that the bulk of studies in child development utilizing interviews have only involved mothers, with apparently little or no attention to the presence and effects of defensiveness, the implications of our findings for research methodology seem rather clear and require no further elaboration. Of obvious interest to us are the pos-

sible implications of the two findings for our conceptions about and understanding of anxiety in children. The defensiveness of the HA mothers in the interview does not lead to compellingly clear conclusions. However, although we did not predict this finding it is certainly congruent rather than discrepant with our theoretical conceptions.

It seems reasonable to assume that defensiveness in the interview was motivated by a need to appear "good," however that was defined by the parent, as well as by a need to avoid talking about things about which the parent felt either uncertain or guilty, or both. Since the HA child's mother was being questioned about herself and her child, it is likely that the defensiveness concerned *that* relationship. We do not know what the content of this concern might be or even the degree to which the mother was aware that she was in some way distorting her report. What can be said is that the nature of that relationship is of a kind and involves feelings which makes it difficult for the mother to talk. It would not be correct to say that the relation between the HA child and his mother is more "emotionally toned" than is the relationship between the LA child and his mother. It is more likely that it is the *quality* of the affective parent-child relationship in which they differ.

In our theoretical discussion in Chapter 2 we focused on the kinds of conflicts and attitudes which are engendered in the HA child by his parents. We indicated there that we felt more secure in talking about HA children than about their parents. The findings on defensiveness suggest that the HA mother is one who like her child has conflicts about her adequacy, i.e. the appropriateness of what she has done and how her behavior would be evaluated by others. Implied in this explanation is the suggestion that the uncertainty and feelings of inadequacy experienced by the HA mother have been reflected in her relationship with her child. It will be recalled that the mothers of HA subjects responded to the child rearing attitude scale in an extreme or strong fashion. It is possible that the tendency to take an extremely strong "socially acceptable" position is also a defensive reaction in that it is intended to impress favorably those who will be reading the replies. In other words, both in the interview proper and in reply to the PARI items the responses of the mothers of HA children suggest an inordinate concern with what is right and wrong, good and bad—a characteristic which was clearly implied in our description of *their* children. If this inordinate concern is a characteristic of the mother of the HA child it is not difficult then to understand why, as we hypothesized, aggressive behavior in the HA child would be strongly pun-

ished and why such a child would experience relatively frequently negative evaluations of some aspect of his behavior. A mother who is inordinately concerned with what is right and wrong (and how other people will judge her and her child) is likely to view aggressive and hostile display in her child as unacceptable, perhaps even to the point of confusing aggression with normal assertiveness. The crux of the problem might well be put this way: the HA child's mother is one who responds to and evaluates the behavior of her child not in terms of his capabilities (e.g., inhibiting aggressive or other strong feelings) or age appropriate needs but in terms of standards and values which reflect her dependence on the attitudes of others. Unwittingly such a mother makes demands on the child which he will find difficult to fulfill, failures which result in experiencing negative evaluations and the development of a derogatory self image. One would expect that in this type of parent-child relationship the significance of the behavior of the child would be overlooked or misperceived by the mother because she is not "set" to view behavior in terms of the child's thinking and needs. This is clearly not the kind of relationship conducive to open channels of communication between child and parent.

In the above paragraphs we have attempted to indicate that the findings on defensiveness and extreme attitudes suggest a picture of the mother of HA children which fits in well with the major hypotheses about the HA child advanced by us in Chapter 2. This attempt, of course, was not intended as proof of the hypotheses but rather as a way of indicating that a major finding (i.e., defensiveness) which obscures the significance of the data may, by its very nature, be highly relevant to the merits of the hypotheses.

We feel it is important at this point to emphasize the importance of the finding that anxiety seems little related to indices of social class. In the theoretical discussion in Chapter 2 we stressed the point that test anxiety in a child does not necessarily reflect an emphasis in the home on academic or intellectual achievement but rather a transference to a parent-surrogate (i.e., the teacher) of attitudes which characterized the child's relation with his parents, involving anticipations of negative evaluations, self-derogatory tendencies, and conflicts about dependency needs and aggressive tendencies. We obviously would not maintain that parental pressures for academic achievement would not be important in the case of many test anxious children. We do maintain, however, that such pressures are not a *necessary* condition in the development of test anxiety. A recent study by Sperber (1959) offers support for our hypothesis. He compared a group of army recruits who in terms of education, intelligence test score, and social

class differed markedly from a sample of Yale College students on whom normative data were available for the College Test Anxiety Questionnaire. Despite these background differences the distribution of test anxiety scores was very similar for both groups, the median scores on each of the items also being very similar. These kinds of findings clearly suggest that there is no compelling reason for assuming a strong relationship between anxiety and social class.

At the beginning of this chapter we indicated why it was not possible for us to focus in depth on specific hypotheses and why we placed greatest faith in the general hypothesis that the HA children, in contrast to LA ones, would be found to have (or to have had) more unfavorable experiences and relationships. This broad hypothesis received strong support, particularly in the analysis of sentences in the interviewer's reports. Furthermore, there were findings which did suggest that some of the specific hypotheses presented in Chapter 2 had merit. Difficulty in school learning, restricted modes of expressing aggression, and little communication with parents about school experiences—these findings are supportive of hypotheses presented earlier in this book. It is important to point out that few, if any, of the findings contradicted any of our hypotheses. The fact that mothers of HA children were more defensive in the interviews than mothers of LA, in addition to the fact that fathers' ratings discriminated predictably between HA and LA children whereas ratings of mothers did not, does not allow us to draw conclusions about the status of our hypotheses with conviction. These two findings, however, certainly have bearing on the nature and methods of future research at the same time that they indicate the complexity of the problem of ascertaining the factors which mitigate or reinforce the anxious reaction in children.

Personality factors and sex differences

CHAPTER 9

In previous chapters we have discussed the anxious child primarily in terms of problem-solving situations and parental report. As one would expect, it was difficult, if not impossible, to present such a discussion without some consideration of personality factors or variables. In fact, it was clear from our theoretical discussion in Chapter 2 that intellectual and personality factors were inextricably related in the anxious child, i.e., one could not understand the behavior of the anxious child in problem-solving situations without consideration of the interpersonal significances which the test situation has for such a child. Consequently, in many places in previous chapters, particularly those dealing with the parental interviews, the significance of anxiety in personality organization has been discussed. Some of our studies, however, were more rather than less concerned with personality variables and are dealt with in the present chapter. The first half of this chapter, therefore, is organized in terms of headings which refer to hypotheses discussed in Chapter 2. Although some of the studies in the present chapter have been presented in Chapters 7 and 8, the aspects of these studies to be discussed here have not been taken up previously. The second half of this chapter is concerned with sex differences, a problem which we think sheds much light on the relations between anxiety and personality.

PERSONALITY VARIABLES

Body Image. In our discussion of the test anxious child we described a type of parent-child relationship which would result in the develop-

ment of a self-derogatory attitude in the child. We further maintained that, particularly in the case of the young child, the development of such a derogatory self picture would tend to generalize and affect his attitudes toward his own body. Adults frequently overlook the fact that the young child is as curious, puzzled, and concerned with his own body (its integrity, adequacy, and functions) as he is with the external world. It will be recalled that one of the more frequent findings in our review of the literature in Chapter 3 was that young children in general, and boys in particular, had many worries and fears involving their bodies. We also suggested at that point that concern about the body would be expected to be very strong, particularly in the case of the HA child. If the young child is developing a derogatory self-picture, we would expect that what is normally a source of concern (i.e., bodily adequacy) in most children would be intimately affected by such self-attitudes and become an unusually potent source of anxiety.

Another consideration behind this hypothesis involved the problem of the relation between aggressive behavior (overt or covert) and self-attitudes. This relation was discussed in Chapter 2 and is summarized here:

1 One of the aspects of the matrix of unconscious factors related to the test anxious response is strong hostility toward parents and surrogates whose evaluations of the child's performances elicited in him hostility which could not be satisfactorily expressed. If the hostility was expressed, it was punished, if it was expressed in phantasy, it resulted in conflict with positive feelings toward these figures. It is the sense of this formulation that the instigation of hostility in the child by parental behavior has taken place over a period of years, during developmental periods when the child is relatively unable to regulate the strength of response to instigated hostility (a kind of all-or nothing mechanism) at the same time that the disparity of strength between parent and child is greatest.

2 Parental handling of the child's hostility may have various effects on the child's attitude toward such hostility, but the most frequent effect is to produce the experience of guilt, an effect which is reinforced by the strong positive feelings the child has toward his parents. To the extent that this hostility can be kept unconscious the child avoids the upsetting experience of guilt, i.e., the awareness of how "bad" he is. We assume that in the case of the test anxious child parental handling resulted in inordinately strong hostility and that attempts to defend against its expression were unsuccessful to the degree that it did not avoid the upsetting experience of guilt.

3 The concurrent conscious experience of hostility and guilt makes it likely that the child's attitude toward himself will contain a consciously derogatory flavor especially if as in the case of the test anxious child, his hostility and guilt are aroused in situations in which judgment

is being passed on his adequacy, i.e., situations in which some assessment is made of the disparity between the child's behavior and parental expectations. What is implied in this formulation is that the test anxious child is one who derogates his own worth and tends to direct aggression toward himself rather than others, a self attitude which bespeaks of the strength of the unconscious hostile tendencies toward others.

4. Another of the unconscious factors increased in strength in the test anxious reaction concerns unconscious phantasies about the consequences of directing strong hostility toward parents. Essentially these are unconscious phantasies of retaliation on the part of the parents—what they will do to the child in response to his hostility—as well as of being in a state of abandonment and helplessness, i.e., a state in which his dependency needs will not be satisfied. It is, in fact, this perceived threat to the fulfillment of his dependency needs which not only serves as a control against the overt expression of hostility but also motivates behavior which will insure the possibility of satisfaction of his dependency needs. As a result, the dependence of the child on parents for approval, direction, and support becomes a dominant tendency. This in turn would have the effect of inhibiting the child's spontaneity and creativity. Conforming to the expectations of others is, however, in the case of the test anxious child, no stable solution because, it is assumed, his relations with adults are such that his hostility is frequently being aroused in situations where negative judgments about the adequacy of his behavior are being made—and a kind of vicious circle of behavior starts in again. It is important to emphasize that this vicious circle consists not only of the child's repeated efforts to stabilize his conflictful relationship with his parents but also the parents' erroneous perceptions and conceptions of the significances of those efforts.

The first study relevant to the hypothesis that the HA child is one whose body image (like other aspects of his self picture) reflects a strong concern with adequacy employed the Rorschach with the same matched pairs of subjects used in the learning study (Chapter 7). These were also the subjects from whose parents the interview data discussed in the previous chapter were obtained.

In utilizing the Rorschach in connection with the body image hypothesis our interest was primarily in the content of the responses. If the HA child had bodily concerns, we would expect that, in contrast to the LA child, he would give more anatomy content in responding to the ambiguous ink blots. The following are examples of anatomy responses: skeleton, inside of somebody, X ray, lungs, person's breasts, tonsils, etc. Thirteen of the 32 HA subjects gave at least one anatomy response but only 6 in the LA group did so ($p = .05$). This supportive finding should be viewed in the light of two other Rorschach findings with these same subjects: the HA, in contrast to the LA subjects, gave significantly fewer responses in general and the quality of these responses was poorer. In other words, the tendency of the HA subject to

give anatomy content was found in the context of reduced responsiveness and frequent lapses of adequate reality testing. The emergence of anatomy content in such a context would seem to reflect an area of concern rather than of indifference.

Another test of the body image hypothesis involved human figure drawings by these same subjects. The procedure and results of this study were presented in Chapter 7 and discussed in connection with problem solving. For the reader's convenience we give below a description of the six scored variables and the direction of the findings (all of which were significant not only for the 32 matched pairs but for two previous samples of subjects as well).

1 *Mutilation* HA > LA—scored as present if one or more limbs or facial features (eyes, nose, mouth) were absent, or if either ears, hands, or feet were absent when they had been included in one of the two drawings. Thus, mutilation was scored if a child had drawn hands on one figure but not on the other. It was not scored if no hands were drawn at all. Mutilation was also scored if one or more limbs were markedly small compared to the rest of the body.

2 *Smile* LA > HA—scored present if the corners of the mouths in both drawings turned upward or if the corners of the mouth in one of the drawings turned up and the other was ambiguous. Scored absent if both were ambiguous or if one or both turned down.

3 *Shading* HA boys > LA boys, LA girls > HA girls—scored present if there was any blackening in of portions of the drawings. The one exception was hair, which was filled in by most of the children and therefore not scored.

4 *Arm position—down* LA > HA—scored present if one or more arms made less than a 45 degree angle with the body or turned in toward the body.

5 *Rigidity* HA > LA—scored present if the figures appeared rigid, unable to move, or likely to topple over if they did move.

6 *Playfulness—humor* LA > HA (most subjective of the judgments)—scored present if a particular detail or some expressive stance of the figure communicated a kind of playful, humorous mood. (This was not the antithesis of rigidity since drawings scored as playful included some that were also scored rigid.)

The tendency for mutilation and rigidity to be present in the drawings of HA children is supportive of our hypothesis that the body image which these children have reflects some concern with and questioning of body integrity and adequacy. As important as what is present in the drawings of HA children is what is relatively absent, i.e., presence of

smile, arm position—down, and humor—playfulness. These three variables which correlate negatively with anxiety reflect a degree of freedom to become involved in a creative task in an expressive, pleasurable, and nonconstricted fashion. Put in another way, in the case of the HA child his drawings of the human figure lack indications of positive affective associations and instead contain features reflecting negative attitudes.

We do not consider the Rorschach and human figure drawing findings as more than suggesting that our body image hypothesis has some merit and deserves further study. The procedures employed were admittedly indirect and the variables scored were equivocal in their interpretive significance. The indirectness of the procedures, however, cannot be considered as an obvious limitation because from a theoretical standpoint it is possible, and even probable, that the attitudes toward bodily adequacy described in our hypothesis may not be present in the child's consciousness in a clear fashion. That is to say, the experiences and phantasies associated with anxiety about bodily adequacy may no longer be present in consciousness as a result of defensive reactions. These experiences and phantasies may now have the quality of unconsciousness with their derivatives in consciousness a distorted or disguised reflection of their origins. For example, a boy who studiously avoids games where the possibility of physical injury exists may be able to rationalize such avoidance both to himself and others in a way which obscures (or prevents him from recognizing) the strong bodily concerns of which he was once aware. Our review in Chapter 3 of studies of school phobias—the dynamics of which we assumed to be similar to those in the development of test anxiety—strongly suggested that the overt symptomatology was related, among other things, to unconscious anxiety arousing experiences and phantasies involving body adequacy and integrity. Consequently, the significance of the findings based on the Rorschach and human figure drawings is not necessarily limited by the fact that such techniques are indirect in the sense that they avoid direct questioning of the subject and instead are calculated to maximize the expression of unconscious ideation and imagery. Undoubtedly, HA children differ in the degree to which they are consciously concerned with bodily adequacy. Our findings shed no light on such differences. It is the task of future research to determine how these children perceive and report their conscious self attitudes about body adequacy and how this is related to findings from measures which maximize the expression of unconscious contents. If clinical experience with school phobic children can be used as a guide, one would predict a greater discrepancy among

HA, in contrast to LA, children between direct and indirect measures of body adequacy*.

Before we leave this section, a finding obtained from the parent interviews deserves brief discussion. It will be recalled that HA boys had significantly more illnesses, particularly more severe illnesses, than LA boys. Girls in general had fewer illnesses than boys and there were no differences between LA and HA girls. It is possible, of course that the differences between HA and LA boys are a function of sampling error. This can only be determined by future studies. However, on the assumption that the difference is a true one, it does point to a factor which, in addition to the parent-child relationship, can serve to exacerbate the anxiety which the child has about bodily adequacy, integrity, and functions. Levy (1945) described a series of young children who developed a variety of reactions following operations. The most frequent reactions were night terrors, fears, dependency, and negativism. What is of particular interest is that 83, or 67 per cent, of the 124 cases were boys. Although Levy contends that the range of reactions observed in his series would be similar to what one would find in the general population (his series consisted of those referred to a psychiatrist), there are no statistics by which to evaluate such a contention. There are, however, two considerations which suggest that our finding and that of Levy may not be due to sampling error. First, there is hardly a psychopathological condition in childhood which does not occur more frequently among boys than among girls. Second, as was pointed out in Chapter 3, fear of physical injury seems to be significantly more frequent among boys than among girls. It would be our contention about our own cases that there are at least three factors which have to be considered in order to understand our finding: (1) the tendency of boys to be concerned about bodily adequacy, (2) a type of parent-child relationship which results in

* H. Mazadoorian and J. Davidson, Yale undergraduates working under the direction of Dr. William Dember (1959), carried out a small study which deserves mention here. They gave the College General Anxiety Scale to a class of 60 students and selected the 10 with the highest (HIA) and the 10 with the lowest (LA) anxiety scores. The 20 subjects were first instructed to draw a person. Following this the subject was asked to draw a person "as you would have at age 8." The drawings were scored for the presence of each of the six HIA indicators described in the study by Fox et al. (1959). If an indicator was present the subject received a +1. The highest possible score for a subject was 6 and the lowest 0. The drawings were scored without knowledge of a subject's anxiety grouping. There was no significant difference between HIA and LA subjects in the initial drawing although the difference was in the expected direction. On the second or "age 8" drawing the difference was significant ($p < .01$) in the predicted direction.

derogatory self attitudes which generalize to the child's body image, and (3) serious or frequent illness which increases interest in and concern over bodily functions and adequacy. It is the interaction of these factors among boys which reinforces the anxious reaction in general and a derogatory body image in particular.

Aggression. It is apparent from our discussion of the body image hypothesis, as it will be again in the next section when we discuss dependency, that the handling of hostile impulses results in a core conflict in the HA child. The ramifications of this conflict can best be seen in the following series of statements taken from our discussion in Chapter 2, p. 17.

It will be remembered that we hypothesized that the test anxious child is one in whom strong hostility has been engendered, the objects of which were his parents. This hypothesis raised two highly related questions. When the very young child experiences hostility toward another person, what does he wish to do to that person? When this same child anticipates a strong hostile reaction from another person, what does he think that person will do to him? In answer to both questions we assume that infliction of bodily injury is perhaps more readily observable in relation to the first than to the second question. It is sometimes difficult to believe that a young child will anticipate bodily injury from parents who have never or rarely used physical punishment with the child. The difficulty here is the implied and unproved assumption that the tendency on the part of the child to wish to inflict physical injury is a direct and sole function of similar behavior on the part of the parent. In any event, we assume that all young children in varying degrees interpret the behavior of parents as threatening and punishing and, as we have already indicated, this will frequently be interpreted in terms of bodily injury and pain. Where parental behavior continually instigates strong hostility, as in the test anxious child, the retaliatory behavior which he anticipates will, we hypothesize, involve anxiety about bodily integrity. Much of this anticipation of bodily injury suffers the same fate as the externally directed hostility, i.e., it takes on the characteristics of unconscious contents. Denivatives in awareness undoubtedly exist in the form perhaps, of negative self-attitudes in regard to strength, size, physical attractiveness, motor agility, and bravery.

In brief, then, our hypothesis is that in the test anxious child of school age the anxiety he experiences in test situations is a danger signal that certain phantasies about bodily injury (i.e., mutilation phantasies) are near the threshold of awareness—phantasies intimately related to his own externally directed hostility.

As in the case of the body image hypothesis, the first attempt to evaluate our thinking about the relation between anxiety and aggression involved the Rorschach with the same 32 matched pairs described previously. Again our interest was in the content of the Rorschach responses. It was assumed that if the anxious individual tends to perceive himself as inadequate and has difficulty justifying the direct

expression of aggressive feeling his Rorschach responses should contain fewer responses involving fighting arguing or a "volcano" percept than would be found in the responses of LA children. A χ^2 analysis did indicate that more LA than HA children gave such responses ($p = .05$).

An apparent inconsistency arises when one relates the Rorschach findings about body image and aggression to each other i.e. in the prediction related to body image the HA subjects were expected to give more anatomy responses whereas in the prediction related to aggression they were expected to give fewer responses than the LA subjects. Since body image and aggression are both areas of conflict why should one type of content be expected to appear more frequently than the other? There were two considerations which determined the predictions. First anatomy content was considered by us as being a more disguised and distorted expression about bodily anxiety i.e. more "distantly" related to underlying conflicts than in the case of the kind of aggressive content which was scored. Put in another way giving anatomy content is not as directly related to cues for anxiety as is the giving of arguing fighting and volcano content. Second in accord with our theoretical discussion the prepotent aggressive response in the HA child was not outwardly but rather inwardly directed. The inwardly directed aggressive response is rarely found in the Rorschach. In fact, in the Rorschach study significantly more HA than LA children were unable to respond at all to any objective property of the cards involving color (chromatic achromatic, shading). In other words one of the effects of anxiety in the Rorschach situation is to reduce outwardly directed responsiveness. Aggressive content is frequently associated with color in the cards consequently, reduced responsiveness to color would also affect the occurrence of aggressive content.

A study which is highly relevant to the above discussion is that of Doris (1959). In his investigation which consisted of four different studies an attempt was made to measure the relationship between test anxiety and the propensity for self blame assignment in regard to the experience of failure in a test situation. These studies by Doris were more sophisticated attempts with school children to replicate the finding with college students of a positive relationship between test anxiety and self blame in a failure situation. In the four related studies by Doris fifth and sixth grade school children served as subjects. In these four studies subjects filled out questionnaires which permitted them to assign blame to themselves or others for their performance in arithmetic.

1. In studies I and II these questionnaires were administered after an induced failure in arithmetic.
2. In study III the blame questionnaire was administered both before and after the failure in arithmetic.
3. In study IV the blame questionnaire was administered without the induction of a specific failure in arithmetic.

In all of these studies the blame questionnaires were administered in group situations. However, in study IV the group situation was followed by individual testing of the subjects with projective instruments.

A major and consistent finding from the first three studies was a significant and positive relationship between test anxiety and *both* the self-blame and other-blame measures. In other words, the higher the test anxiety score the stronger the tendency for the child to blame both himself and others. The significant correlation between anxiety and self-blame was, of course, predicted. The finding of a significant relationship between anxiety and other-blame was not predicted. Before discussing the implications of these results a further finding should be reported: the above relationships held whether or not the subjects were given a specific failure experience in arithmetic. Since the test anxiety and blame relationships were obtained even with the introduction of a specific failure experience, the question arose as to the presence of an artifact accounting for the correlations. That is to say, since the anxiety and blame questionnaires were of the "yes-no" format, the obtained correlations might reflect a response set on the part of certain children: the child who says yes to the anxiety items may be one who will say yes to many other kinds of items. The fact that in studies II and III the same relationships obtained even when the format of the blame questionnaire was devised to minimize the possible effects of a response set suggested that the relationships which were consistently obtained on the first three studies were not artifactual, although this is not a conclusive argument.

The fourth and last of Doris' studies was extremely important because the measure of blame assignment was not based on a questionnaire but rather on stories told by the child to TAT-like pictures. In the blame questionnaires used in the first three studies the child is presented with various alternatives, but in the telling of the stories the assignment of direction of blame to the central characters of the stories is determined by the child himself. Doris found that with this technique there was a significant and positive relationship between test anxiety and self- or "hero"-blame but there was no correlation between

anxiety and other blame tendencies. In other words in a situation where the assignment of blame is determined by internal factors—it comes, so to speak spontaneously from the child—there is a relation between anxiety and self blame (as in the first three studies), but not between anxiety and other blame (unlike the first three studies). We interpret these findings as suggesting that the self blame tendency in anxious children is more prepotent than the outwardly directed blame tendency. However, the findings in the first three studies of a positive relationship between test anxiety and other blame cannot be summarily dismissed. At the very least they suggest that in our formulations we have probably underemphasized the strength of such a tendency in anxious children. It would indeed be strange if as a group anxious children were devoid of a strong outwardly directed hostility. The very nature of our theoretical formulation should have suggested to us that outwardly directed hostility would be present in the fantasies of anxious children even though the overt expression of it would tend to be blocked. Put in another way the conflict in such children is between self and other blame tendencies with the former being stronger than the latter. If, as in the blame questionnaires the anxious child can respond to presented alternatives without fear of retaliation it is not surprising that both types of blame tendencies are found.

In the concluding pages of our theoretical discussion in Chapter 2 we indicated that although we had emphasized the importance of aggression in the development of anxiety we were postponing systematic study of this relationship until we were fairly secure that our measures of anxiety had an encouraging degree of validity. Although the data we have presented above are compatible with our theorizing the validity of our hypotheses is far from demonstrated. It seems appropriate at this time to elaborate on the problems involved in studying the relationship between anxiety and aggression. Such a discussion may give the reader a better understanding of the scope of the problem both methodologically and theoretically.

In discussing in Chapter 2 the relationship between anxiety and aggression we tended to speak about this problem in the context of a child with his parents. It would be correct to say that our focus was on the child's behavior within the confines of his home. In this context however, one is probably not justified in assuming that a child's aggressive tendencies, covert or overt will be the same with both parents. Our own observations with clinical and research subjects indicate that there is a good deal of variation among anxious children in the strength of aggressive tendencies (self or outwardly directed) and their mode of expression in relation to parents. In some cases

there is an unusual degree of inhibition of overt aggressiveness with both parents, in other cases the child is capable of aggressive display with only one of the parents (Our experience suggests that it would be the rare anxious child who could direct aggressive feeling to both parents) What seems distinctive in those cases where there is differential aggressive response to the parents is that the difference in response seems extreme, i.e., to one parent the child responds anxiously and submissively but to the other parent more overt aggressiveness is discernible Our clinical impression from our parent data (Chapter 8) is that more often than not the anxious child has greater difficulty in expressing hostility to the father than to the mother This is not to say that one would expect frequent expression of such hostility to the mother but rather that it would be more discernible in the mother-child than in the father-child relationship If this is true, one would expect that the perception of the child by the father would differ from that by the mother Put in another way, since the behavior of the child is different toward the two parents, they would tend to perceive him differently, particularly in terms of aggressiveness That this is the case is further suggested by the data in Chapter 8 on parental attitudes It will be recalled that there were significant differences between the ratings by mothers and fathers, the ratings by fathers differentiating HA and LA children in the predicted fashion whereas those of the mothers did not We cannot conclude from these data that there is a greater discrepancy between the ratings by parents of HA in comparison to parents of LA children The important implication of these findings is that when one assumes a child's behavior to be the same to both parents (e.g., he is equally aggressive to both) one is probably overlooking important variations in the child's behavior

If it is an oversimplification to assume that the anxious child handles his aggressive impulses in the same way with both parents, one would be equally in error in assuming that directing aggression inwardly would always characterize his behavior in relevant situations with peers and adults other than his parents It is one thing to say that self-directed aggression is the prepotent response in the anxious child and it is another thing to say that this response tendency will be characteristic in all situations Relevant here are observations which we have made over a period of time in four classrooms These observations were not made in the context of a formal study but rather as an exploration of the kinds of overt behavior which could be observed in HA and LA children in the classroom setting over a period of months The dominant impression we received was that the ability of some HA children to direct aggressive feelings outwardly was in part a func-

tion of the teacher. In those classrooms where the teacher essentially had little control over the class—where the degree of respect and deference accorded the teacher by the pupils was noticeably low—many IIA children could give vent frequently to aggressive tendencies. This seemed to occur far less frequently among anxious children in those classrooms where the teacher obviously was one whom the children respected to the degree where maintaining her favor was an important objective. It is these observations which reinforced us in maintaining that although self aggression was a strong tendency in the anxious child, there were conditions in which he could direct aggression toward external figures.

Still another factor which complicates the understanding of the relationship between anxiety and aggression concerns the contents of the fantasies of IIA children. Even where the anxious child obviously cannot direct hostility toward others, one cannot assume that his fantasies contain little hostile content or, if they do, that it is primarily of a self aggressive kind. If therapeutic experience is used as a basis for viewing the problem, there can be little doubt that the fantasies of such children contain strong hostile impulses toward other people. The problem may be put in the form of the following questions: (a) What are the relative strengths of self and outwardly directed aggression in the fantasies of anxious children? (b) How do variations in these relative strengths correlate with the degree and direction of overt aggressive behavior? More important than the actual phrasing of these questions is the implication that among anxious children there is considerable variation in the overt and covert manifestation of aggression.

The preceding discussion was an attempt to elaborate on the statement made at the end of Chapter 2 that although the relationships between anxiety and aggression were of great importance in our theoretical approach to the problem of anxiety, we did not feel that the complexity of these relationships was adequately handled or formulated theoretically in a way which led to specific predictions. All we felt secure in predicting was that self aggression was a strong tendency in anxious children. While the data presented in this section support this prediction, they also bear out our anticipation that the problem is a most complex one which could (and should) be the sole focus of another research team.

Dependence. In the section on body image as well as in Chapter 2 we characterized the anxious child as one in whom the "perceived threat to the fulfillment of his dependency needs" not only serves as a control against the overt expression of hostility but also motivates behavior which will insure the possibility of satisfaction of his de-

pendency needs. As a result, the dependence of the child on parents for approval, direction, and support becomes a dominant tendency. This in turn would have the effect of inhibiting the child's spontaneity and creativity." It was this way of thinking which gave rise to the series of studies described and discussed in Chapter 7. Briefly, these studies indicated that the problem-solving efficiency of anxious children was in part a function of the degree to which their dependency needs were gratified. At this point it is important to present a finding not heretofore given.

It will be recalled that one of the reasons we chose to utilize the Rorschach situation was that it required the child to respond *independently*, i.e., to decide for himself when, how, and how frequently to respond to the unfamiliar stimuli. In such a situation our expectation was that the HA subjects, in contrast to the LA ones, would show more dependent behavior. For example, we would expect that more HA than LA subjects would ask the examiner questions reflecting a need for direction—a need to know what is expected of them so as to conform to such expectations. Such a difference actually was found and, as in many of our other studies, it was true for boys but not for girls. This difference was discussed by Sarason et al. (1958b):

A further analysis . . . concerned the child's handling of the tracing of each of his responses. The focus here was whether a child said he could not or did not know how to trace a response, or stated that he was not satisfied with what he had traced, or where the examiner explicitly stated that the child was concerned in some way with having to trace his responses. As in the previous analyses it was the HA boys who experienced difficulty with tracings: nine HA boys vs. four HA girls, and four LA boys vs. five LA girls. In going over the count it became apparent that some children had been described by the examiner as being concerned either if in tracing they tended to check their tracing with the blot or if they took back the ten. Since such behavior seems much less clearly indicative of concern than a child's own statement of concern, a similar count was made excluding these cases. In the new count there were eight HA boys vs. two HA girls, and two LA boys vs. four LA girls. The tendency for differences to appear between HA and LA boys, but not between HA and LA girls, remained.

The same children utilized in the Rorschach study were independently observed for one hour in their classrooms (Sarason et al., 1958c). Most relevant in that study for the present discussion are the observations of child-teacher relationships. The following from the published study summarizes the findings:

Characterizing the child's attitude toward a relationship with the teacher is difficult because of the different ways in which such attitudes or relationships were manifested. During the course of a single observation the child

might be seen as having different kinds of relationships with the teacher. For example, at one point a child may ask the teacher an unusual number of questions while at another point he may be misbehaving in order to get attention—both types of behavior being phenotypically different while perhaps being genotypically the same. For the purposes of the present study, however, we have put a child into what was for him the most frequent category. Among the HA boys there were six cases who tended to ask an unusual number of questions of the teacher, suggestive either of dependency or attention getting. There were three such cases among the LA boys. There were four HA boys whose behavior changed markedly when the teacher was near them in that they would then make a display of concentrated study—or in some way acted as if hoping to avoid the teacher's attention, in three of these cases the description seemed to suggest that the child feared the possibility of censure by the teacher (one of these cases was explicitly described as "scared"). There was no such case among the LA boys. There were, therefore, ten HA and three LA boys whose overt behavior in relation to the teacher suggested insecurity. In the remaining cases of each of these two groups the behavior in relation to the teacher was ambiguous or, more frequently, the observations simply did not contain material relevant to the problem. Among the girls the content of the observations was of a different quality. For example, whereas nine boys characteristically asked many questions of the teacher, only one girl was so described. The kinds of differences observed between HA and LA boys were not observed between HA and LA girls.

Characterizing the teacher-child relationship (in the case of boys) as one reflecting insecurity on the part of the child is unrevealing as to the nature of the insecurity. When the above description is viewed in relation to the Rorschach behavior previously described, it seems justified in stating that the insecurity is concerned with getting approval and direction from the teacher. In other words, the stability of the HA boy seems to be a function of a strong need to maintain the approval, or avoid the disapproval, of someone in the role of a parent surrogate. In this sense he is unduly dependent on others for the feeling of personal security. We assume that the personal security of all children is in part a function of how others regard them. In the case of the HA boy, however, this dependence on the approval of others is unusually strong and leads to a way of relating to authority figures which inhibits spontaneity and personal expression. If what one does is in large part determined by what one thinks others expect and value, creativity and flexibility are not likely to be manifest. When, therefore, as in the Rorschach, such a child does not know what is expected of him and is required to respond in terms of his own values, his dependency comes to the fore in a way and to a degree which impoverishes his problem solving efficiency. In fact, as was pointed out in Chapter 7, in the Rorschach situation significantly more HA than LA children could not respond *at all* to some of the stimuli.

Unpublished data relevant to the relationship between anxiety and dependency were kindly supplied to us by Feld (1959). In 1953 Winterbottom found a relationship between the need achievement of boys and the reports of the ages at which the mothers expected independent accomplishment. At the time of the original study the sample of 29 boys ranged in age from eight to ten years. Six years later, in 1958, Feld was able to make repeated observations on 14 of the boys, including this time a high school test anxiety scale. A significant finding from this study was that test anxiety scores in adolescence were negatively related to a reported absence of early expectations for independent accomplishment, i.e., the higher the test anxiety the lower were the expectations of the mother for independent accomplishment. The correlations between test anxiety and two indices of expectations for independent accomplishment were statistically significant. However, because of the small number of cases, these correlations cannot be viewed as other than indicating a possible trend. They obviously, however, are consistent with our own hypotheses and findings.

At this point it is relevant to recall the discussion in Chapter 8 of the predicted finding that parents of HA children, in contrast to those of LA children, made significantly more extreme ratings on a scale concerned with parent attitudes and child rearing practices. These extreme ratings were generally in the socially acceptable direction. For example, to the question of the degree to which parents should help children with their problems, the HA parents were *extremely* in favor of providing such help. Our comments (pp. 229-230) about the tendency to employ extreme ratings bear repetition here.

It is important to note that the "extreme" or "strongly" held attitudes are in the socially acceptable direction. For example, parents of HA children are strongly against harsh treatment and forcing children to grow up too fast, and strongly in favor of practices like having children tell parents about their problems and parents helping children with their problems. It was the sense of our prediction that to adopt an extreme position on these kinds of items may reflect not only virtue but the sin of failing to take into consideration instances in which these extreme positions should be modified. For example, a parent may, in reality, have to be strict or become angry when reacting to behavior which seriously endangers the child or others. Also, if one always avoids forcing a child to grow up too fast, the possibility may be increased of permitting a child to remain immature too long. (It is interesting to note that LA children were rated as more mature by their parents than were HA children by their parents.) It may be very good to encourage a child to talk with his parents about his problems, but sometimes this might involve considerable difficulty or even a painful loss of self-esteem for the child. It should be pointed out that while the HA parents feel very strongly that children should be encouraged to talk about their problems

the HA children, especially the boys are described by their parents as telling less about school than the LA are reported to discuss with their parents, in spite of the fact that the HA have more problems than the LA have both in and out of school. It might be said that it is one thing for a child to feel free and motivated to relate problems and failures to parents but quite another for him to feel that he must report all difficulties. If the child feels compelled not to keep secrets from mother and father, this can create the dilemma of his feeling guilty about not revealing a failure but at the same time experiencing anxiety about the loss of parental regard if they are told the secret. Finally, there is the extreme favoring by the HA parents of their helping their children with problems. Again, it is only realistic that children need help with problems, but help with every problem—or even every difficult problem—could lead to the child's feeling anxious about his adequacy in solving them himself. A child may feel he will fail when he does not have help, even when the solution is otherwise within his grasp. Such a situation would tend to arouse feelings in the child that he must be dependent upon the parents and fear that if he expresses resentment he will lose the assistance he regards as essential. It is quite different if children feel free to try out their own solutions and go for help when they feel they need it, so that they feel some readiness to face situations where independent effort is required. Implicit in parents helping their children with all problems is their unexpressed opinion or fear that the child will not be sufficiently capable without their assistance.

These comments about the extreme attitudes of HA parents in particular (toward helping children with their problems) not only are in substantial agreement with Feld's finding but also have significance for our findings that the strong dependency needs of the HA child can impair his problem solving efficiency.

Thus far in this chapter we have focused on three personality variables (body image, aggression, and dependence) which were central to our theoretical discussion in Chapter 2 and for which we had relevant data. This is not to say that these data, although relevant, were of a scope and depth which would permit evaluation of our hypotheses in a secure fashion. As we have pointed out in several places in this book, the over all requirements and plans of the first six years of the research project could not encompass systematic studies of personality variables. Although the data we have presented in this chapter in the main support our hypotheses, their chief value must reside in the fact that they indicate that the relationships we have hypothesized have merit and deserve systematic study.

The next section is entitled sex differences, which involves variables considered by us as basic to understanding the relationship between anxiety and personality variables. We might anticipate the discussion to follow by saying that we have come to the conclusion that any systematic theory of personality development must start from and account for sex differences. The statement that "sex is destiny" may be

too broad but it contains a degree of insight on which psychological research has yet to capitalize

SEX DIFFERENCES

Perhaps the most difficult problem encountered in organizing this book centered around the presentation of findings of sex differences. One aspect of the problem, and a somewhat embarrassing one, is that we had not anticipated the pattern of findings on sex differences and did not become fully aware of the problem until well after this research project was initiated. An important and somewhat amusing factor in this neglect was that for several years before this project was started a series of studies on test anxiety had been carried out by Sarason and others in a setting (Yale College) where there were no females. Consequently, the theoretical formulations which guided our work with children did not take up the matter of sex differences—an omission which we noted in our discussion of the literature in Chapter 3. This is further evidence, if any more is needed, that the population one works with can produce blind spots in the researcher.

A more thorny aspect of the problem of presenting the findings on sex differences was when and how to present them. Undoubtedly, the reader has discerned that in this and the previous chapters the results of many of the studies are different for boys and girls. It would have been awkward and interfering of continuity in presentation if the sex differences in results had been taken up each time (or several times) in each of the chapters. It seemed most advisable to reserve discussion of these results until this point, i.e., to summarize at this point the findings on sex differences, to add heretofore unrepresented data, and to examine the possible significances of all these findings for theory and methodology.

Summary of Previous Findings In summarizing the findings on sex differences we shall limit ourselves to those for which evidence from more than one study is available.

1. The most consistent sex difference we have found is that girls get higher scores than boys on both the TASC and GASC. The difference between boys and girls on the GASC is greater than the difference on the TASC. This pattern of differences was obtained both in England and America.
2. Girls consistently obtain lower lie scores than boys.
3. In several of our studies involving problem solving in non-classroom situations, there were no differences between HA boys and girls.

in the degree to which they contributed to the predicted findings. However, in those studies in which HA boys and girls did differ in the degree to which they contributed to the predicted findings, the HA boys contributed more than the girls. Put in another way, predictions about the interfering effects of anxiety tend to receive more support with HA boys than with HA girls.

4. Using a school achievement criterion (i.e., grades), one again obtains the expected differences between HA and LA boys ($LA > HA$) but not between HA and LA girls. Although this finding is from a single study, we mention it here because later in this chapter we present supportive data.

5. In those studies relevant to personality and development, a much clearer picture emerges in the case of the HA boy as compared to the HA girl. Put most briefly, whatever factors reflect or are conducive to the development of anxiety are more frequently found with HA boys than HA girls. This is not to say that these factors never differentiate between HA and LA girls but rather that they differentiate less frequently and in a less patterned way than when one compares HA and LA boys.

Before taking up the possible significances of these sex differences, we give some data heretofore unrepresented.

Classroom Observations This study (Sarason et al., 1958e) was referred to in the previous section on dependence. (There too, the expected positive relationship between anxiety and dependence was clearer with HA boys than with HA girls.) Our focus at this point is on sex differences in problem-solving behavior in the classroom setting. In reading the following quotation, it should be remembered that the observers, as in all of our other studies, were not aware of the anxiety grouping to which the subjects belonged.

References to Academic Ability Of the 16 LA boys, eight were explicitly labeled as either superior or adequate in academic ability; one as somewhat inadequate. In seven cases, there was no mention at all of academic ability. Of the 16 HA boys, three were labeled as either superior or adequate; five as having an academic problem. There was no reference to academic ability in eight cases. There was no trend at all in the distribution of these observational labels between HA and LA girls. These results suggest that, in contrast to the LA boys, the academic ability or performance of the HA boys was less impressive, whereas there was no difference between HA and LA girls. Not only was no LA boy described as an academic problem, but more LA than HA boys behaved in a way so as to cause the observer to record either their presumed adequacy or superiority.

Task Orientation This variable refers to the degree to which the child could maintain attention to the different tasks presented him. The behavior relevant to this variable was categorized as follows:

1 Task oriented The child's attention very rarely, if at all, was distracted from tasks

2 Slight variability Similar to "task oriented" but child was sometimes distracted from a task or allowed himself to be distracted The amount of attention given to different tasks varied slightly (e.g., between reading and arithmetic)

3 Marked variability The child was very attentive sometimes but very distracted at other times

4 Generally distractible Attention to classwork was negligible

It seems clear from Table 18 that the HA boys again presented a less favorable picture (or created a less favorable impression on an observer) than did LA boys If one were to combine the "task oriented" and "slight variability" categories there would still be a tendency (fourteen LA vs nine HA) for the LA boys to give a picture of greater efficiency in performance. The major difference between HA and LA girls is that more of the latter were found in the "generally distractible" category If one were to combine the first two and last two categories one finds that the more favorable impression was created by the HA girls

TABLE 18

Differences in Task Orientation between HA and LA Groups *

	Task Oriented	Slight Variability	Marked Variability	Generally Distractible
LA boys	10	4	0	2
HA boys	4	5	5	2
LA girls	5	0	5	6
HA girls	4	5	5	2

* From Sarason et al (1958c)

Significances of Sex Differences in Anxiety Any attempt to understand the possible significances of our findings on sex differences must begin with the very consistent tendency for girls to obtain higher anxiety scores than boys—a finding incidentally compatible with several studies reviewed in Chapter 3 The first explanation that comes to mind is that girls in fact are more anxious than boys in the sense that there are more situations to which girls respond anxiously and/or that when they do experience anxiety it is a stronger response than in the case of boys There are several considerations which make it difficult to accept this explanation with any degree of certainty

1 To accept such an explanation one must make the assumption that self reports to scales such as we have used are not subject to distortion.

As we pointed out in our discussion of lie scales (Chapter 6), such an assumption would be ill advised in the extreme

2 We are not aware of studies using measures of anxiety different from ours (e.g., physiological measures) which in any clear way support the conclusion that there is a sex difference in the strength of the anxious response or in the frequency of its occurrence

3 If girls are in fact more anxious than boys, we would have expected from our theoretical position that our predictions about the interfering effects of anxiety would be more clearly demonstrated in the case of girls than boys. As we pointed out earlier, our predictions received better support with HA boys than with HA girls. It could be, of course, that our theoretical position is wrong. However, it should be emphasized that our predictions in several studies received support with HA girls either to a statistically significant degree or with trends in the predicted direction. The problem arises from the fact that our predictions received much clearer support with boys than with girls.

We do not feel it necessary to deny the possibility of a real sex difference in anxiety in children. At the present time a sex difference in anxiety cannot be proved or disproved. Our position is that even if one accepted the existence of such a difference, the nature of our findings would suggest that other factors are playing an important role.

A second explanation for the consistent finding that girls get higher anxiety scores than boys is that *it is easier for girls than for boys to admit to anxiety*. In other words, the difference in anxiety scores reflects less a real difference between boys and girls than it does a difference in attitude toward admitting anxiety. This explanation essentially rests on the observation (personal and clinical) that in our culture, at least, we expect and support the admissions of anxiety in girls to a degree and in ways different from boys. We react to anxiety in little girls in much the same way as in the case of the anxious woman, i.e., it is considered part of the "feminine character." It is in keeping with femininity to be anxious and, however troublesome this anxiety may be to others, it is not viewed as a derogation of a girl's or a woman's femininity. As important as how the relationship between anxiety and femininity is perceived in our culture are the ways in which we tend to handle its occurrence. Essentially, we react to anxiety in the girl by supporting her and allowing her to depend on others for the necessary reassurance and help. The net result is that she does not learn that she must or should hide anxiety from others.

The picture is rather different in the case of boys. Boys are viewed as little men who should already possess some of the essentials of

masculinity. They should be active, brave, fearless, and stoical. In contrast to the girl, the boy is not expected to be clinging, dependent, and fearful. One of the most cruel forms of punishment which can be administered to a boy is to call him a "sissy," i.e., to be like a girl. Calling a girl a "tomboy" is not a form of punishment—it frequently is experienced by the girl as praise of a high order. A colleague has summarized what we are here saying as follows: "If your girl acts like a tomboy, it's cute. If your boy acts like a sissy, you're worried."

We realize that we have painted a black and white picture of the differences in cultural conceptions and reaction to the expression of anxiety in boys and girls. We have done so in order to emphasize the point that early in life boys and girls learn to have somewhat different attitudes toward the expression and admission of anxiety. The admission of anxiety by a girl tends not to be viewed by her as impairing or reflecting adversely on her femininity. In the case of a boy, such an admission is experienced as a weakness in his masculine armor. It is these differences which, in our opinion, are reflected in the finding that girls obtain higher anxiety scores than do boys.

In this connection we have carried out repeated studies on another problem in which sex differences have been found and which bear on the interpretation of sex differences as differences in defensiveness. These studies originated from a finding that anxiety scores tend to drop when the anxiety scales are administered twice to the same group of children. That is, the mean anxiety score from the questionnaire administered *say* in May, tends to be significantly lower than the scores on the same questionnaire administered in January.* We also found that there is a significant tendency for scores to drop when either questionnaire is administered second in a series of two, with the usual time interval during which the children draw human figures (see Appendix A). This has been interpreted as a build up in defensiveness against admitting to anxiety. It has been termed "the position effect." From the previous discussion we would expect sex differences in the degree to which a drop in score occurred and in the degree of position effect. More particularly, we would expect that girls, being freer in the first place to admit to anxiety, would become less defensive than boys during the time interval between administrations of scales.

* Actually the findings are more general than this simple statement indicates. The studies are reviewed in detail in Appendix A. It should be noted here that the drop in score on retest does not significantly affect whether a child remains in the HA or LA category. In our most recent study on this point, utilizing three classrooms in which there was a one-year interval between administrations of the scales, one child changed from the HA and one from the LA category.

In two studies results pointed in the direction of a sex difference in defensiveness, boys being the more defensive.* In the first of these studies, the question under investigation was whether by administering the TASC and GASC in one sitting the position effect (defensive mobilization) could be curtailed relative to its size when scales were administered three weeks apart. The following results were obtained:

1. Under the three-week interval condition the scores of boys drop significantly from first to second administration. This also occurs with girls.

2. Under the five minute interval the scores of boys drop significantly from first to second administration. This does not occur with girls.

These results can be interpreted as indicating that the attempt to reduce defensiveness by manipulating the time interval is successful with girls but not with boys.

The second instance of a sex difference intruding upon defensiveness (as measured by the difference between first and second administration of a scale) was observed in a study concerned with an attempt to predict the degree of defensiveness. We may anticipate the discussion in Appendix A by indicating that the best "predictor" of the position effect is the score on the scale administered first in sequence. While this is most parsimoniously interpreted as indicating a "floor" effect in the anxiety scores, it is interesting to note that the relationship between boys' first scale scores and their defensiveness is higher than that obtaining for girls. Even though boys' scores tend to bunch toward the low end of the scale to start with, they show as much decrement as do girls from test to retest, and *show a higher relation between decrement (defensiveness) and original scale score*. There appears to be, therefore, a greater similarity for boys than girls between scores on the scale administered first and the decrement from first to second scales. The fact that boys' scores on a scale given first relate more highly than girls' to the "defensiveness" score argues for the sex difference in average anxiety score as reflecting a sex difference in defensiveness.

There are important implications of the explanation that boys are more defensive than girls in answering the items of the anxiety scales. For example, high anxiety scores are relatively uncommon among boys. When a boy obtains such a score it could be assumed that his need to admit anxiety (in the questionnaire situation) is stronger than the tendency to defend against its admission. The high score of such a

* These two studies are the "fourth" and "fifth" studies discussed in Appendix A.

boy is both statistically and psychologically deviant within a population of boys. We would, therefore, expect that in comparisons between HA and LA boys there would be relatively clear differences in their performance in criterion situations. This, as we have pointed out earlier, is what we found in our various studies. In studies relevant to the interfering and facilitating effects of anxiety, developmental correlates, and personality variables, HA boys are differentiated from LA boys in ways predictable from our theoretical conceptions of anxiety. That our predictions received substantial support in comparisons involving HA and LA boys is compatible with the explanation that the boy who admits to a great deal of anxiety is psychologically deviant within a population of boys.

But what could the term "psychologically deviant" signify? In our view it signifies at least two interrelated things. First, unlike most boys the HA boy does not feel able to cope with his anxiety by himself, at least to the extent that he does not make an effort to hide his feelings from the stranger who is administering the scales. Second, whereas most boys deny to the stranger the extent of their anxious experiences, it is as if the HA boy has a need to communicate both the strength of his anxiety and his inability to cope with it. In keeping with our theoretical formulations, one could say that a high score in a boy reflects his negative self attitudes as well as his need to depend on others. It is worth emphasizing that the process of answering the questions on the two anxiety scales is a form of communication of which the child is quite aware. He knows that his answer sheet will be scrutinized.* The knowledge that someone will study the answers and make evaluations of them has different effects on the LA and HA boy. In the former it results in the denial of weakness as a way of avoiding a derogatory evaluation, in the latter it results in exposure of weakness as if as an expression of dependence and need for help. This is not to say, of course, that the boy with a low anxiety score is not anxious. He may have as much anxiety (or experience anxiety as often) as the HA boy. What is important is that such a LA boy attempts to avoid communicating the degree of his anxiety. One might be tempted to say that the boy who clearly admits to his anxieties is "better off" than the child who cannot so communicate. This possibility cannot, as we indicated in our discussion of lie scales in Chapter 5, be evaluated until

* One of the frequent occurrences following the administration of the anxiety scales is that some children ask, "When will we find out how we did?" This question is asked even though it was emphasized that there were no right or wrong answers. It indicates among other things, that the children view their own answers as right or wrong, good or bad.

we develop better means than we now have for distinguishing between the LA child who is relatively unanxious from the LA child who is very anxious but who will not admit to it on the questionnaires. In any event, the picture of the HA boy that emerges from our studies is far more indicative of maladjustment than it is of positive adjustment.

In contrast to our findings with boys, high anxiety scores are not uncommon among girls and, in the light of differences in reactions of adults in our culture to the anxieties of boys and girls, one would not expect that a girl's high score would have the same psychological significance as it does for a boy. In other words, a high anxiety score in a girl is neither statistically nor psychologically deviant among a population of girls. As we indicated earlier, the girl can admit to anxiety without this admission being viewed by her or others as a derogation of her femininity, i.e., it is in keeping with the stereotype of femininity.

We have observed a trait which illustrates the point we are trying to make. In the course of administering the anxiety scales we have noted differences between boys and girls in their overt behavior to the questions being read to them. Consider, for example, a question from the TASC: "When you are in bed at night, do you sometimes worry about how you are going to do in class the next day?" We noticed that in answer to such a typical question there were girls who would nod their heads vigorously, some of these girls would have a broad smile, and they then would encircle a "yes." Their overt behavior did not in any way suggest that what they were admitting to was unpleasant or a weakness. We rarely, if ever, observed such behavior in boys. In fact it was extremely difficult to predict from a particular boy's overt behavior how he would answer a question. Boys were typically dead pan in contrast to the girls.

If girls are less defensive than boys in the admission of anxiety, it suggests that a group of HA girls would be psychologically heterogeneous—more so than a group of HA boys. Such a group would be comprised of at least two kinds of girls: those whose high scores reflect negative self attitudes and interfering modes of response (as in the case of HA boys) and those whose high scores reflect tendencies which are of an ego-syntonic nature. If this is true, then one would expect to get as consistent differences between HA and LA girls as between HA and LA boys. This is what we found in our various studies. In order for the above explanation to receive firmer support one would, of course, have to demonstrate two things: (1) that among a group of HA girls there are subgroups differing in their attitudes toward and response to anxiety, and (2) that such subgroups are not

found, or are found to a much less degree, among a group of HA boys. Here again we come up against the thorny problems raised and discussed in Chapter 5: how to identify the different modes of defense associated with self reports of anxiety. We think it entirely reasonable to assume that as important as the strength and frequency of anxiety in personality development is the pattern of attitudes toward self and others which becomes associated with the anxiety. Although we raised and discussed this problem in Chapter 5, the considerations we have dealt with in the present chapter have made the problem more complex in at least two ways.

1 In Chapter 5 we tended to stress the importance for future research of discriminating between those LA children who are relatively unanxious and those who are anxious but cannot admit to it or have defended against the anxiety in a way which results in the mislabeling of anxious symptomatology. Our discussion of sex differences has indicated that similar kinds of problems exist in the case of high anxiety scores.

2 The discussion in Chapter 5 was in general terms. Our discussion in the present chapter indicates that one cannot view the problem in terms of "children" but rather as a problem which manifests itself somewhat differently in boys and girls.

Content of the Scales. Thus far we have discussed two possible explanations for the findings that girls obtain higher anxiety scores than boys and that our predictions received more consistent support in comparisons involving HA and LA boys than in those involving HA and LA girls. The first explanation, which did not seem very tenable to us, involved the assumption that girls are in fact more anxious than boys. The second explanation was based on the assumption that girls are less defensive than boys in admitting anxiety. This explanation not only accounts for the higher scores of girls but also permits explanation of the fact that the scales predict better for boys than for girls.

We now turn to a third explanation which casts a somewhat different light on our findings of sex differences. This explanation involves the assumption that *the content of our scales taps areas of anxiety more pertinent to boys than to girls*. In developing our scales we were quite aware that we could not for practical reasons include all sources of anxiety. The fact that the content of our children's scales was in part determined by the content of the scales used successfully with college students, *who were all males*, undoubtedly served to restrict the "sample of anxieties" from which we drew our items for use with children. In any event, the scales for children did not contain items deliberately

chosen in ways to reflect possible sex differences in sources of anxiety. In our review of the literature in Chapter 3 we pointed out that although sex differences in the content of fears are not as clear-cut as the fact that the total incidence of fears is higher in girls than in boys, the weight of the evidence seems to indicate that, in general, boys are more concerned about bodily harm and personal inadequacies, whereas girls are more concerned about the establishment and maintenance of social relationships and with how others perceive them.

In order for our findings of sex differences to be considered a function, in part at least, of the content of our scales, one would have to show that the scales contain more items of special concern to boys than to girls. This would be necessary because our scales predict better for boys than for girls. For purposes of the present discussion, the GASC is more relevant than the TASC because it was developed to encompass a wide variety of anxieties but the TASC is obviously much more focused. It is our opinion that even a cursory study of the GASC (Chapter 4 and Appendix B) would suggest that there are more items having to do with possible bodily harm than with the establishment and maintenance of social relationships or with how others perceive the child. In other words, *the GASC seems to contain items more pertinent to the anxieties of boys than to the anxieties of girls*. If we accept this statement as being true to an undetermined extent, it allows for several tentative conclusions about our findings of sex differences.

- 1 If the content of the GASC is more pertinent to the anxieties of boys than of girls, it helps to explain why we were able to predict the behavior of boys better than that of girls.

- 2 The fact that girls get higher scores than boys on the GASC—the difference is greater than that found between the sexes on the TASC—suggests the generalization that the admission of anxiety is negatively related to the degree to which the anxieties in question are of special concern to the child. If the anxieties reflected by the GASC are not central concerns of girls, then their defensiveness or tendency to deny and withhold, will not be strong and they will tend to get high scores. Conversely, if the anxieties reflect central concerns of boys, then defensiveness will be strong and high scores relatively uncommon.

- 3 If one could construct a scale which was composed of items reflecting the anxieties most central to girls (i.e., establishment and maintenance of social relationships, etc.) one would expect (a) that boys might get higher anxiety scores than girls and (b) that one could predict to criterion situations better for girls than for boys.

It should be pointed out that explanations of sex differences in terms of defensiveness (the second explanation offered earlier) and scale content supplement each other. In other words, both explanations taken separately may have merit but, particularly where self-report techniques are employed, scale content and the identification of defensive tendencies must be viewed in relation to each other. We do not think it necessary to elaborate on the significance of the discussion in this chapter for methodology in the study of personality variables by means of self-report techniques. In Chapter 5 we discussed in some detail the ways in which we and other researchers had oversimplified the problem of the identification of lie and defensive tendencies, and it should be obvious from the present chapter that we probably underestimated the degree of oversimplification.

CONCLUSIONS

In concluding this chapter we feel it important to discuss briefly the implications for psychological theory of the many faceted problem of sex differences. In beginning such a discussion we have to make explicit an assumption which, in our opinion, should have the status of a fact. This assumption is that beginning with the earliest days of life boys and girls are differentially responded to by others to a degree and in ways which result in different perceptions of self and others, i.e., girls experience themselves and the world differently than boys. It seems strange that this problem has not been squarely met by any of the systematic theories of development. There is, of course, recognition of the problem but not with the clarity and detail which do justice to its complexity and pervasiveness. For example, we are not aware that psychological theory has posed and attempted to answer this question: how pervasive are sex differences in personality development? No one to our knowledge has denied they are pervasive, and yet the problem of degree of pervasiveness has not been critically examined despite its implications for theory, methodology, and the direction of future research. If one assumes a very high degree of pervasiveness, it suggests that in attempting to understand a particular phenomenon (e.g., anxiety) one would not state conclusions which did not explicitly refer to boys and girls. Put in another way, if one assumed a high degree of pervasiveness, one would have to reserve judgment about conclusions drawn from results which were not based on separate populations of boys and girls.

Consider instances in which separate populations of boys and girls

have been studied on a particular variable and no sex differences have been found. If one is not particularly impressed with the pervasiveness of sex differences, one would tend to accept the finding (and, frequently, combine groups for purposes of statistical analysis). If, however, one is very impressed with the pervasiveness of sex differences, one might be surprised at finding no differences and consider, in the light of what is known about sex differences on other variables, the possibility that a true difference is in some way being masked by the interaction between sex differences on another variable and the particular conditions of the experiment. Our own research illustrates the problem in still another way. We found sex differences in anxiety score but the considerations discussed in this chapter lead us to the conclusion that the obtained differences may be in part a function of the failure to consider the problem of sex differences in choosing items for our scale. The fact that sex differences in degree of admission of anxiety may also have affected our findings further illustrates how complex the understanding of a positive finding of sex differences can be.

Perhaps the most important implication of the problem of sex differences is the need for systematic study of the conditions—familial, social class, cultural—which help determine how, psychologically speaking, boys become boys and girls become girls. Although it is safe to assume that boys and girls are responded to differentially, we are far from knowing the nature and degree of such differential response. Our ignorance of how such differential response is experienced by the two sexes is even greater. For example, girls generally learn to talk earlier than boys. Most explanations of this fact have been essentially nonpsychological in nature, i.e., it reflects in some ways basic biological differences between the sexes. Without denying a role to such biological differences, we would submit the opinion that until it has been demonstrated that differential response to boys and girls plays no role in learning to talk, total acceptance of a nonpsychological explanation is not scientifically warranted. It is clear from what we have just said that we are of the opinion that sex differences are extremely pervasive in personality development and organization—far more important in human behavior than personality theories have recognized.

the class. There are a number of factors, of the conscious and unconscious variety, which can have the effect of distorting the validity of the child's self report. As have other investigators, we developed a lie or defensiveness scale which we hoped might allow us to correct for some of these distorting tendencies. But our studies, and subsequent thinking, rather clearly suggested that the evaluation of the lie tendency could not be accomplished either by a single scale of uniform content or by an omnibus scale of relatively few items. It is our opinion that to an undetermined degree the lie tendency varies with content area (e.g., anxiety, aggression, friendliness, etc.) and that the validity of paper and pencil questionnaires will be significantly increased when comprehensive measures of intraindividual variations in lie tendencies are developed. In any event, our growing awareness that the measurement of the lie tendency was far more complex than heretofore recognized did not permit us to apply our scales to a large scale attack on our practical objectives.

2. In various parts of this book we have reported studies in which we found predicted differences between HA and LA boys, but not between HA and LA girls. In view of the fact that girls consistently get higher scores than boys, we have hypothesized that the admission of anxiety by girls is not as difficult as it is for boys, i.e., that the lie or defensive tendency in boys is stronger than in girls, at least in relation to anxiety. This hypothesis, of course, emphasizes the importance and complexity of the first problem discussed above. We have also suggested that our findings may reflect the fact that our scales do not adequately sample those anxieties which have a predominantly interfering or disorganizing effect in girls. Whatever the explanation may be, the fact remains that our scales do a much better job of discriminating in a predictable way among boys than among girls. It seemed clear to us, therefore, that this type of sex difference had to be better understood before applying our instruments to the solution of pressing, practical problems.

Although we have had to postpone the initiation of time consuming studies related to the practical objectives of this research project, we feel no constraint in discussing our findings in terms of their implications for some psychological practices in the elementary school as well as their bearing on possible ways of approaching our practical objectives. There are, in fact, several reasons why we feel under an obligation to present such a discussion even though we will be going beyond our data. First, because of our interests we have done a good deal of thinking about the practical implications of our findings and we feel

that this should be shared with the reader. Second, we hope that our own speculations may serve to stimulate a degree of research interest on the part of others more proportionate to the importance of the problem area than has been true in the past. Third, we wish to convey our conviction that certain aspects of the practical problems we shall discuss are of central significance for those whose major concern is with theory or with what is implied by the term "basic research."

THE BRIGHT BUT ANXIOUS CHILD

It is now recognized by many teachers that because a child presents no problem is no basis for concluding that he is well adjusted or utilizing his capacities in an efficient manner. This recognition, however, has tended to be restricted to the extremely shy, inhibited or withdrawn child. With many of the children who, according to our scales, experience strong anxiety, the teacher is unaware of this tendency or reaction in them. This is not surprising because many of these children are not overtly as distinctive as the hostile, acting-out or the extremely shy, withdrawn child. It should also be remembered that although anxiety is a painful experience which sets in motion a variety of defensive or avoidance reactions, its overt manifestations are (except in extreme cases) frequently difficult to recognize. In none of our studies using teachers' ratings of anxiety in relation to a test performance or a child's self-report criterion is there evidence that teachers can recognize the anxious child to a degree which would be of practical significance.

Certain of our experiences with teachers point to at least one source of the above situation. *If a child is bright, highly motivated, and clearly adequate to his classwork, it is difficult for his teacher to believe that this child may be highly anxious about his abilities and his classwork.* We have had occasion many times to discuss IIA children with their teachers, and particularly in the case of the bright child we have encountered a reaction of near disbelief that such a child answered the questionnaires as he did. We have come to the conclusion, in fact, that the bright but anxious child operates under a special handicap because his school performance is at least adequate. It is likely that verbalizations by him to the teacher expressing his anxiety about his abilities and performance would be met by a response akin to "you have nothing to worry about." Since anxiety is very impervious to logic and reason, this kind of child in some way learns that it is just as well not to express these particular feelings.

Implications for education

CHAPTER 10

In Chapter 4 we indicated that one of our ultimate objectives was to develop measures which would have diagnostic and prognostic utility with an elementary school population. As frequently happens, however, such a practical objective cannot be directly attacked unless it is preceded by a great deal of theorizing about the variables which one thinks important and by at least as much research on the particular way in which those variables are to be measured. The path of least resistance is to plunge immediately into the practical situation with the hope that luck is on one's side so that the need for preparatory theorizing and researching is eliminated. In the case of the professional person who has to grapple every day with a variety of human problems, it is entirely understandable why he might choose the path of least resistance. Aside from the fact that in most practical or help giving situations the rendering of service and the doing of systematic research are incompatible functions, it is too often overlooked that he who is called upon to render service very frequently feels under pressure to do or to use something which gives the promise of enabling him to render better service, even though his innovations may have little scientific underpinning and will ultimately be found wanting on many counts. This situation is not helped by the fact that there are relatively few full time researchers who understand the nature of the practical problem and are willing to spend the years of research necessary to its solution. In other words, those who by training and outlook could help solve some very important practical problems are usually not interested in doing so. It is our opinion, in fact

that an important aspect of the *Zeitgeist* in psychology today is the derogation of "practical" research—as if the capacity of a theory to illuminate the nature of a practical problem and point to ways of solution is of little significance. It may be of little significance to the theoretician who is not open to criticism because he has no interest in applying his theory to a concrete practical problem. However, when the practical professional person has little or no enthusiasm for a theory which is apparently not at all concerned with the everyday problems with which he is confronted, he likewise would not seem open to criticism.

From the outset it was our hope that the results of our research would enable us in the future to apply our procedures to three very important practical problems: (1) to pick out those children whose school performance suffers because of disabling personality factors, (2) to pick out those children whose early school performance appears adequate but whose later school performance and behavior will reflect personality disturbance, and (3) to determine the ways in which the classroom situation can be used to help those children who have disabling reactions and attitudes toward school. Underlying these objectives was the conviction that the vast mental health problem in our society should be attacked by focusing on the relatively young child in a situation in which all children must participate, namely, the school. If we have learned anything about psychopathology, it is that personality disfunction in an individual has a history, for example, the bulk of the several million adolescents and adults who are in neuropsychiatric hospitals and/or in psychiatric treatment showed signs of their personality disfunction before puberty. If these early signs can be validly identified, then one is in position to study their etiology as well as means for their amelioration.

It was discouraging to us, but not at all surprising that after a number of years of research we did not feel justified in beginning a systematic attack on the practical problems indicated above. While we were very encouraged by the consistency of our results, there were certain thorny problems which if not better understood and measured would prevent us from achieving our practical objectives with a high degree of success. These problems have been described and discussed in previous chapters. It may be well at this point to indicate briefly the most thorny of these problems.

1 In Chapter 4 we gave our reasons for using the kind of scale format which can be group-administered and requires the child to encircle a "yes" or a "no" in response to questions which are read to

because the other person will not understand him. In the early grades the school performance of such a child may be more than adequate, but as he progresses through the grades and encounters more difficult academic content the level of his adequacy may drop. We have no doubt that in some cases the level of adequacy may never drop even though the level of anxiety does not decrease.* However, it is in our opinion missing the point by quite a bit to evaluate the effects of anxiety over time by focusing on conventional standards of academic or classroom adequacy. What is as or more important than meeting these standards are (a) the child's problem solving adequacy with non-school types of content and tasks, (b) the degree to which he can use his abilities creatively, i.e., the degree to which his thinking can go beyond what is "put into him," and (c) the ways in which his anxiety affects his functioning in such areas as peer relationships, sexuality, and play.

The tendency to conclude from good school performance that the child has no disabling concerns about his adequacy reflects not only a kind of halo effect but, more important, a puzzling failure to attempt to obtain routinely a picture of the child's conception of himself in relation to school. Routine psychological testing is carried out in most elementary schools but the testing almost exclusively concerns intelligence (narrowly conceived) and academic achievement. How the child sees himself in relation to his school performance, the relation of such a self image to actual performance, the changes in this relation over time, the possible significances of such self conceptions for variations in later personal, social, and school adjustment—it is these kinds of questions on which school testing programs practically never focus.

We initiated our discussion with the bright but anxious child because, although his school performance is at least adequate, our results suggest that in comparison with the bright but LA child the quality of his performance is too dependent on task and instruction factors. Put in another way, the bright but anxious child seems to be a good example of where traditional objective indices of potential and performance may obscure real difficulties in problem solving in certain situations. From the standpoint of society as well as the individual, the possibility that this type of child is prevented from utilizing his potential in a creative manner cannot be ignored. The identification of high ability by psychological procedures would seem to be far less thorny than identification of those factors which prevent the creative use of such ability. We look upon our own research as suggesting that

* Our studies with college students strongly suggest that this is not an infrequent occurrence.

the type of procedures utilized by us, with the focus on an important type of experience and response (i.e., anxiety), ultimately will be fruitful in the identification of these interfering factors.

Future Adjustment of the Bright but Anxious Child. In the previous section we indicated, by reference to the bright but anxious child, that adequacy as measured by traditional tests of ability and performance does not allow one to assume that such adequacy is a general characteristic of the child. Aside from considerations of ability and performance, our research has implications for the problem of the prediction of future adjustment. For example, the bright but anxious child is one who has admitted to the frequent experience of anxiety both in relation to school (TASC) and non-school (GASC) situations. What is the fate of this relatively high level of anxiety? There are, broadly speaking, two possible developments. The first is that the anxiety level is decreased as a result of a variety of defensive maneuvers. The problem here is that the defensive reactions may be successful in that they reduce the frequency and strength of the anxious experience, but the nature and consequences of these reactions may, and frequently do, produce other intraindividual and interpersonal problems. We are far from knowing the developmental consequences of the different defensive attempts to reduce strong anxiety, be these attempts successful or not. Here again we come up against a problem which is knotty both for the theoretician and researcher and which will require far better understanding than we now have before the practical problem of early identification of personality disfunction (and its relationship to problem-solving) can be attacked.

The second possible fate of a relatively high level of anxiety is that it essentially does not change. Our studies with college students strongly suggest that this is probably not infrequent. What is interesting about these studies is the similarity between the bright but anxious college student and his counterpart in the elementary school: in both instances their school performance may be, and frequently is, at least adequate but in other types of problem-solving situations (particularly where self-directed independent action is required) their performance strongly suggests the effect of disabling experiences embedded in a personality organization which does not allow for change over time. By conventional procedures and standards the anxious college student appears to raise no problem but it was our distinct impression that many of these people could not utilize their capacities either fully or creatively because of a long-standing struggle with anxiety. In addition, and equally important, it was our impression that many of these individuals were in need of some form of personal counseling.

In the case of the bright but anxious elementary school child whose anxiety level essentially does not change over time, we do not know the variety of consequences which may ensue. How this anxiety may affect his attitudes toward future schooling or his vocational phantasies and plans, or his conceptions of self and others, or his leisure time activities—to these questions we have no answers at the present time. Since these questions involve not only the identification and utilization of intellectual talent but also the early diagnosis of personality dysfunction, they obviously are relevant to the development of mental health programs in the elementary schools.

We have no doubt that there are bright but anxious children whose anxiety level decreases over time and in such ways as not to bring about other problems. It is not our opinion that an anxious child will forever more, directly or indirectly, show neurotic signs of his struggle with anxiety. Although we do not think this happens frequently, there is no evidence to judge its frequency or the conditions in which this may occur. From the standpoint of a preventive or therapeutic mental health program in the elementary school, the importance of these "spontaneous remissions" is far greater than their frequency of occurrence might suggest. Their importance lies not only in the sphere of practical applications but also in our understanding of personality dynamics.

THE INTELLECTUALLY AVERAGE CHILD

The most consistent finding in our studies is the negative correlation between anxiety and intelligence test scores: the higher the test anxiety score the lower the IQ. At first glance it might appear relatively simple to explain such a finding: the lower the IQ the greater the likelihood that the child has had difficulty and experienced failure in school and that as a consequence he approaches the test and test-like situation with anxiety. This explanation essentially involves conceiving of test anxiety primarily as an effect of rather than as a source of his educational experiences. The IQ is, so to speak, the etiological agent of the anxiety. It may be well to indicate briefly why such an explanation is probably too simple, although we do not doubt that in some cases there is an element of truth to it.

1 The bulk of the cases contributing to the negative correlation is within the intellectual average range (90-110). In none of our studies is there evidence that those with IQs below 100 contribute disproportionately to the correlation. From an intellectual stand

point children within the average range should not have undue difficulty in school particularly in the elementary grades. If these children experience a great deal of anxiety in regard to school it does not seem reasonable to blame their IQ.

2 There is a significant positive correlation between test and other anxieties. If one explains test anxiety in terms of an interaction between IQ and school experiences it seems difficult to extend the same explanation to the other anxieties which the test anxious child has unless one assumes that a generalized reaction takes place because of some shattering school experiences. On the basis of our parent interview data the incidence of such shattering school experiences is far smaller than the incidence of test anxious subjects and therefore could at best help explain the relationship between test and other anxieties in a relatively few cases. One would expect few of these cases to be found among the intellectually average children.

3 In our college studies where we were clearly dealing with the top of the distribution of intelligence the same negative correlation is found between test anxiety and IQ score as well as the same positive correlation between test and other anxieties. It seems unreasonable to attribute test anxiety among these college students to their IQ score.

4 Perhaps the most important point might be put this way: the negative correlation between test anxiety and IQ score is a function of the kinds of intelligence tests which are employed. The correlation not only varies with the nature of the tests but none of the correlations helps explain why in certain kinds of problem solving situations the HA subject performs better than the LA one.

In beginning this chapter we focused on the bright but anxious child because he seemed to be a good example of the point that high performance on traditional tests of intelligence is an inadequate basis for assuming that the intellectual potential is or will be utilized in a creative and productive manner—or that it is or will be utilized in an efficient manner in more than a few types of problem solving situations. When such a child does not live up to the expectations based on his high IQ we then look for an explanation to the role of nonintellectual factors. The situation is rather different in the case of the HA intellectually average child. For example we do not expect from such a child now or in his future signs of distinctive performance. He is not likely to be advised to go to college and if he does one expects that he will be near the bottom of his class. When these predictions turn out to be true it is taken as proof that the intellectually average child is not one from whom a distinctive performance can be expected. It is not our purpose here to examine this line of reasoning. We wish only to

for developing measures to perform such a function would not be urgent. As we have pointed out, however, teachers do not perform such a function to a satisfactory degree. It has been argued that the primary task of the teacher is to teach and it is unjust to expect her (or him) to be able to perform in addition the roles of psychological diagnostician and therapist. It has also been maintained that what makes it difficult for the teacher to execute the teaching function to an optimal degree are the many non teaching duties which teachers have in many school systems. Therefore, to require the teacher to be able to diagnose and handle personality problems (e.g., the anxious child) would further reduce her efficiency as a teacher. We cannot deny that there is some truth to this argument. The considerations to be discussed below do not add duties but rather are intended to maximize the results which the teacher can obtain as a teacher.

Whether wittingly or not, each teacher engenders in her classroom attitudes toward learning, tests, failure, and success. We realize that there are many sources of such attitudes but there can be little doubt that the teacher is one of them. From our observations we have concluded that one of the most important dimensions on which teachers vary is the degree to which they establish an atmosphere in which the child's sense of security and level of self-esteem are very much determined by the adequacy of his performance. In some classrooms failure or lack of progress by a child is responded to by the teacher in a way that increases the child's feeling of inadequacy. In other classrooms such a child is responded to in a way that, while it recognizes the child's failure or rate of progress, does not make him feel that the teacher is rejecting or derogating him. i.e., the teacher likes and accepts him despite his inadequacy or failure. It is too frequently forgotten by parents (and also by teachers) how important a figure the teacher is in the life of a child. From the standpoint of the child, what he thinks is the teacher's attitude toward him is of great moment to him, *particularly if he likes the teacher and wants to be liked by her*. We emphasize this last point because we have observed classrooms in which it was quite clear that the children had little respect for the teacher, and what she thought of and said to them carried little weight in the sense of affecting their self attitudes. It is when the child is disposed to like and respect the teacher that the ways in which the teacher responds to an inadequate performance of the child are of great significance. This would be especially true of the anxious child, who, as described previously by us, is dependent on the positive attitudes of others toward him for a sense of security.

It is important to state that we are not trying to describe "good" and

"bad" teachers We are too aware of the number of factors which would enter into such a dichotomy to assume that how a teacher responds to an inadequate performance is a sufficient basis for making an over all judgment As we pointed out in the previous paragraph it is among those teachers who elicit positive feelings in children—those teachers who can and want to be liked by their pupils—that mode of response to an inadequate performance is perhaps of greatest import The teacher who responds to such a performance by comparing the child to someone who "succeeded," or by turning her attention to a child who will give a more satisfactory performance, or by telling the child "to try to do better" or "study more" even though he tried his best and had studied his lessons, or by questioning the child in a searching way in front of the class in order to find out the nature of his difficulties—the teacher who responds in any or all of these ways is not necessarily punitive or a "bad" teacher It can be assumed that many children would not be adversely affected by such a response on the part of the teacher Our concern, however, is with the anxious child who is predisposed to be affected adversely by such handling It is unsatisfactory to answer the problem by saying that different children must be responded to differently by the teacher While differential response is obviously necessary, it leaves unanswered the question of the most effective ways of responding to different kinds of children In the case of the anxious child, we feel that the teacher's response to an inadequate performance must avoid reinforcing the attitude that failure and being personally liked and accepted are in any way related From many discussions with and observations of teachers it would seem that one of the more frequent ways in which an inadequate performance is handled, particularly when the teacher thinks the child feels badly, is essentially to say nothing and shift attention away from the child It is entirely possible that in the case of the anxious child this withdrawal of attention, at the same time that the child's dependency needs are strong will have an effect opposite to the one desired

What we have been attempting to indicate in the previous paragraphs is that the handling by the teacher of a particular kind of performance is a far from simple problem Although we have posed the problem in terms of its implications for the anxious child, and have stressed its importance for such a child we are not in the position to make concrete recommendations We shall, however, return to some further implications of this problem at the end of this chapter when we discuss teacher training

Thus far in this section we have indicated that teachers vary in the degree to which they establish an atmosphere in which the child's

suggest that in the case of the *intellectually average but anxious child* the estimate of potential based on conventional tests may contain more error than in the case of most other intellectually average children. Our studies indicate that the intellectually average but anxious child is probably capable of performing above the level indicated by conventional measures but is unable to do so because of the kinds of personality and familial factors discussed in previous chapters.

What we have been calling into question in our discussions are the nature and purposes of the usual testing programs in the elementary schools. It may be well to summarize what we consider to be the inadequacies of such testing programs.

1. There is undue dependence on one or two conventional measures of intelligence. The problem, however, is less one of quantity than of the failure to encompass a range of problem solving situations which would give a clearer picture of intellectual efficiency. If the purpose of a testing program is solely to predict future academic status, the traditional tests are perhaps adequate. But if the purpose is to ascertain patterns of strengths and weaknesses in a range of problem solving situations which goes beyond what is found in the classroom, the traditional tests are far from adequate.*

2. No attention is paid to the child's attitude toward himself in relation to school. Such attention is not necessary if one assumes that attitudes toward and experiences in a particular situation have little or no bearing on performance and behavior in that situation. Nobody to our knowledge has publicly acknowledged or empirically demonstrated the wisdom of this assumption. It is strange, therefore, that the study of such attitudes has not systematically been incorporated in testing programs.

3. Related to the above, but deserving special emphasis, is the failure to study over time the relationships between self attitudes and problem solving behavior.

* This point might be made clearer by reference to an analogous and equally important problem: the selection of students for a graduate doctoral program in any field. In almost every university, graduate students are chosen primarily on the basis of undergraduate grades and performance on such tests as the Graduate Record Examination or Miller's Analogies Test. These tests do a somewhat adequate job of predicting who will finish the doctoral program successfully. However, it has not been demonstrated that these tests in any way predict either who will be a productive researcher or a creative thinker, or a competent critic of his own work or the work of others. It is one thing to predict who gets a degree and it is quite another thing to predict who can utilize his training in particular ways. Similarly with the elementary school child: it is one thing to be able to predict who will finish elementary or high school, it is quite another thing to predict how the educational experience will be utilized by the child.

Perhaps the most serious inadequacy of school testing programs is one for which the schools can hardly be held accountable. We are referring to the fact that the early identification of disabling patterns of behavior, be they related or not to conventional standards of academic achievement, is not an aim of such programs. If only for reasons of money and staff, the school has had to restrict the scope of testing programs to a few problems, e.g., the evaluation of the quality of instruction, the intellectual composition of the classroom, placement in various types of special classes, a criterion for promotion of students, etc. From the standpoint of our society, however, the early identification of disabling patterns of behavior is equally as important a problem as the educational ones just noted. In a way, it might be considered a more basic problem because it not only affects schooling but the efficiency of functioning over that large span of years when the individual is expected to function independently. In short, we are dealing, on the one hand, with the problem of discrepancies between performance and potential and, on the other hand, with the cause of such discrepancies over time. If one conceives of the processes of education as involving getting something out of the individual as well as putting something into him, then the questions we have been raising are of more than academic importance.

It is relatively easy to state what the broad purposes of a school testing program should be. It is far from easy to state how such purposes are to be attained because implementation depends primarily on two things: (1) being able to spell out what the important variables are, and (2) developing appropriate procedures for their measurement. The research presented in this book represents an attempt to approach the problem systematically. In our research we have been primarily concerned with a single variable, anxiety. There is no doubt that there are other variables which are also of major importance in this problem area. However, it is our opinion, reflected particularly in Chapter 2, that anxiety is a central variable which is intimately related to all other important personality and developmental variables. Put in another way, the better we understand the causes, nature, and effects of anxiety, on the one hand, and their relationships to other personality variables, on the other hand, the better will we be able to handle the practical problems we have discussed thus far in this chapter.

THE ROLE OF THE TEACHER

If teachers could validly pick out those children whose anxiety level is high and interferes with productive use of potential, the need

sense of security and level of self esteem are determined by the adequacy of his performance. More particularly, teachers vary in the ways in which they respond to a child's inadequate performance. Another, perhaps related dimension on which teachers vary is the degree to which they encourage children to say "I don't know" or "I don't understand." Our observations suggest that it is relatively rare for a teacher to inculcate in pupils the attitude that one can admit lack of understanding without this being considered a sign of inadequacy. We do not think it is necessary to elaborate on why this is an important problem for the anxious child who has a strong need to know precisely what is expected of him, i.e., what is right and what is wrong, what will gain one approval or disapproval. It may well be that the feeling that one should not express in public one's lack of understanding of what is being presented is crucial in reinforcing anxiety in that it prevents the one person (the teacher) who could be of help to the child from recognizing the problem. In an earlier paragraph a variant of this problem was discussed in terms of the inability of many teachers to reconcile anxiety with performance which is adequate or better. If a child's performance is in every way satisfactory, any expression by him of anxiety about performance is met with disbelief or a formal reassurance which has little or no effect. Such a child, as we indicated, learns not to talk about such feelings.

The teacher cannot get children to admit difficulties in comprehension merely by indicating to them that it is acceptable to do so. The problem is no less difficult than the one of how to handle an inadequate performance. In fact, the two problems are highly related in the sense that the effects of the teacher's efforts will depend not only on what she says but also on whether her communications are presented and followed through in such a way as to make clear that her acceptance of a child will not be affected by his lack of understanding or an inadequate performance. We can perhaps best illustrate our point by focusing again on a particular and frequent classroom situation. We refer here to those times when the teacher is presenting new material to the class. In presenting such material some teachers show little understanding that some children respond to new tasks with anxiety and doubts about their ability to master the material. In the extreme case the teacher presents the material in a way which communicates to some children that they should be able to grasp the material quickly, if not on initial presentation. Such a teacher makes it difficult, if not impossible, for a child to make public his lack of comprehension. Most frequent is the situation where the teacher is aware that one present new material slowly with several repetitions but where

this awareness is not part of a climate which allows the child to be able to voice his difficulties. It is as if the teacher assumes that sheer repetition results in comprehension. The focus of the teacher is on the material to be learned and not on the interaction between type of child and the material to be learned. One might describe the situation as follows: the teacher presents and re-presents the new material as if all children approach it in a rational, detached manner. As teachers themselves well know, this is rarely the case. Unfortunately, however, we are not impressed with the frequency with which such knowledge gets reflected in a psychological climate in the classroom in which the emotional reactions of children during the learning process are verbalized, discussed, and managed so as to make possible the kind of comprehension which makes future learning easier and more enjoyable.

Implications for Teacher Training The considerations we have discussed above have, in our opinion, important implications for the nature and aims of teacher training. It would be a gross injustice to interpret the foregoing opinions and observations as criticisms of teachers, because such an interpretation would have to assume that teacher training prepares the teacher to be psychologically sophisticated both in terms of knowledge and practice. If our own rather numerous discussions with teachers can be used as a guide, one would state that teachers are keenly aware that teacher training does not prepare them in psychology to a degree and in a way which sharpens their recognition and handling of problem behavior.

It may be instructive to compare the psychological training of teachers with that of clinical psychologists, social workers, and psychiatrists. This is by no means an irrelevant comparison because the teacher, whether willingly or not, is in a relationship with children in which she does diagnose, manage, and influence. Even where the teacher studiously avoids the handling of psychological problems in her classroom she is nevertheless influencing ongoing behavior in her pupils. It is important to emphasize that the teacher does influence the psychological development of her pupils—this is hardly a question for debate. The question is whether a teacher can exert this influence in more effective ways than is usually the case. When viewed in this way, it is appropriate to compare teacher training to that of other professions also concerned with the understanding and influence of human behavior.

Perhaps the greatest difference between the training of the teacher and those in the above mentioned professions is in the nature of the internship. In the "psychological professions" there is a minimum of a one year internship during which the trainee works with a variety of

clinical cases under close supervision. The focus of such supervision is not only on clinical technique but also on the utilization of psychological principles for understanding and treating patients. It is in the internship that the calibration of the student as a psychological observer and therapeutic agent is carried out. The importance of the internship can be seen in the fact that the supervised training of the psychiatrist is usually much more than one year, and there is a tendency in related professions to increase in one way or another the length of internship training.

The equivalent of the internship in teacher training (i.e., practice teaching) is usually much less than a year and within that relatively short period of time the focus of supervision is far more on the technical than on the psychological aspects of teaching. When one realizes, in addition, that the knowledge of psychological theory and literature gained by teachers before practice teaching is vastly less than that of the psychological trainee before his internship, it is small wonder that teachers as a group feel inadequate in handling the variety of psychological problems which confront them every day.

As we indicated earlier, we are not proposing that teachers function as psychiatrists, social workers, or clinical psychologists. We do maintain, however, that the effectiveness of teachers would be markedly increased if they were better able to recognize psychological problems, adapt their techniques to the psychological characteristics of different children, and establish a psychological climate in the classroom which facilitates learning. To accomplish these aims will require the introduction of a clinical approach in the training of teachers. How this can best be done we cannot at this point say, although it is obvious that this approach cannot be carried out by the lecture system.

Teachers, like parents, affect the lives of children. If the influence of teachers on children was restricted to the narrow area of academic achievement, then our previous discussion would certainly be considered inappropriate. However, the influence of the teacher on the learner undoubtedly goes well beyond what can be measured by achievement tests. As soon as one assumes that the teacher, either by what she does or does not do, influences the personality of the child, then it is justified to call into question the adequacy of teacher training in maximizing the positive influences which teachers can have.

In concluding this chapter on implications of our work for education it seems appropriate that we take cognizance of the current controversy involving our public schools. On one side of this controversy are those who contend that over the past several decades there has taken place in our schools a de-emphasis of the teaching of "fundamentals," a

devaluation of intellectual performance and a misguided and unwarranted emphasis on personal adjustment and conformity to the group. On the other side of the controversy are those who contend that it is a responsibility of schools in a democratic society to make it possible for a child to experience learning and working with other people that the schools have as much responsibility for the average as well as for the gifted child in the matter of content and level of difficulty of the curriculum and that the degree of emphasis which is placed on fundamentals must take account of the social and intellectual backgrounds of children.

The controversy now raging has many facets and while the above brief statements probably do an injustice to the protagonists they convey some idea of the issues involved. It is not our intention to pass judgment on or take sides in this controversy. We do feel it appropriate to express our opinion that from the standpoint of our research neither side of the controversy has come to grips with the problem of how to maximize a child's productive utilization of his potential in classroom learning. The problem is not one of what and how much a child should learn—although these are important questions—but whether whatever is being learned can be utilized in a productive or creative manner in the future. This problem is as important in teaching wood working as in arithmetic. We are not aware of any solid basis for stating that one side of the present controversy would meet this problem better than the other side. What concerns us is that neither side has addressed itself to the problem. The research we have presented in this book suggests that as important as questions of what and how much to teach is the question: In how many children is there a discrepancy between performance and potential? Our research represents a beginning attempt to view this problem in terms of one variable anxiety. We obviously do not believe that we have comprehended the role of this variable in most of its details. When one considers that we have focused on but one of the many variables involved the gap between the scope of the problem and the state of our knowledge is painfully large.

Sequential effects in administration of the scales

APPENDIX *A*

The problem with which this appendix deals was one of the least expected results of any of our investigations. It was an outgrowth of a routine statistical control. In the spring of 1955, the third year of our work with children's anxieties, the General Anxiety Scale for Children (CASC) was administered for the first time along with the TASC, which had been administered the previous year. The TASC and CASC were administered three weeks apart, but in two different orders of administration. One half of the children, selected randomly, received the two scales in the TASC-first, CASC second (T-C) order and the other half of the children received them in the reverse (G-T) order. This simple counterbalancing was included as a routine cautionary measure against the possibility that one questionnaire might have an effect on the scores of the questionnaire administered second. Analysis of the data revealed that the sequence position of administration of a scale did indeed affect scores on the scales. Whichever scale came second had a significantly lower mean than when it was administered first. Results were so striking that what began as a cautionary measure uncovered a phenomenon—the "position effect"—which has since become a major object of investigation. The importance of the position effect as an object of inquiry warrants some comment.

The existence of this position effect holds important implications both for research with and applied use of the anxiety questionnaires. Indeed, it has implications for research with and applications of all questionnaires and self-rating scales whose object is appraisal of personality traits. A common object of research with self-rating

scales is to obtain a measure of some variable (e.g., test anxiety), *before* the application of some treatment assumed to affect that variable, and again *after* the treatment, to evaluate the changes brought about by the treatment. This experimental arrangement requires use of a scale which is not affected by repeated use alone, independent of intervening experimental treatments or conditions. If a rise or a fall in scale mean will occur on a second administration of the scale without any intervening experimental treatment, then the scale cannot be used in such an experiment.

For example, if we wanted to appraise the effectiveness of a new method of teaching fractions in reducing arithmetic test anxiety, we would want to find out the degree of anxiety experienced in taking arithmetic tests before starting the unit on fractions. We would then separate children into two groups, equated for level of anxiety and arithmetic ability, and introduce one of them to the new method of teaching while continuing to employ the old method with the other group. At the end of the teaching unit we would want to readminister the anxiety scales and compare scores with those obtained before the unit on fractions. But if the administration of the first scale creates in the children a positive or negative attitude toward the scale which was absent at the outset, then these attitudes may affect answers on the second scale independent of anything happening in the interval between administrations of the scale.

Another common purpose in research into personality is to obtain a measure (self rating) of a particular personality trait before some task is performed or some experimental treatment is introduced, after which another self rating scale, designed to appraise a trait quite different from that appraised by the first scale, is administered. While the purpose of the first scale in such investigations is typically to separate groups into different experimental categories, if a position effect such as the one to be reported below is operating on the scale administered second, the results of the experiment will be vitiated by this artifact.

On the practical or applied side a position effect would be just as limiting. One of our long range objectives in developing the test and general anxiety questionnaires was to provide an easily administrable instrument for grouping purposes. By using children's scores on these scales one could more readily pick out extreme groups with respect to levels of school and non school anxiety. But if responding to the TASC affects responses to the GASC, and vice versa, then only one scale could be used validly unless some procedure was developed which eliminated this position effect.

Both practical or administrative and research applications of personality questionnaires, then, often require that responses to those questionnaires not be affected by responses to previously administered questionnaires. It was the question of what effect prior administration of a questionnaire had on responses to a subsequent questionnaire which prompted us to include the routine cautionary measure of counterbalancing order of administering the TASC and GASC. The result was, as indicated earlier, that whichever scale came second in position had a lower mean than when it was the first scale administered. This effect was not new to the literature on research employing personality questionnaires, however. Our finding led our attention to a growing literature on the subject, although convincing explanations for the effect were wanting. In a report of the results of our studies on the position effect (Lighthall et al., 1959a), we have reviewed other studies concerned with the effect.

Very briefly, it can be said that the effect of prior administration of a personality questionnaire on responses to a subsequent questionnaire, whether identical to or different from the first, is that responses to the second questionnaire are such as to put respondents in a more socially acceptable, a more favorable light than indicated by their answers to the first questionnaire. If the scales concern anxiety, the amount of anxiety felt by the respondent is reported to be lower on the second scale than when it is administered first. If there is a "lie" or faking scale embedded in the items, the lie score increases from first to second administration of the scale. The tendency for respondents to appear more emotionally stable or well adjusted on the questionnaire administered second in sequence appears to hold true for children as well as adults, for men as well as for women. There does appear to be a sex difference among children, however, with respect to responses to items of anxiety content. The effects of sex, of time interval, and of scale content on the degree of position effect were investigated in our first series of studies on this phenomenon. We first review the results of these studies briefly and then present another study extending these findings. Four preliminary studies of the position effect were carried out.

Studying responses to the TASC and GASC of boys and girls of grades 3 to 6, we found that a counterbalancing of the order of administration of the two scales resulted in no significant position effect when the TASC came after the GASC.* That is, when TASC was administered second, the TASC scores were not significantly lower than

* Original forms of the TASC and GASC were used in this study. Three weeks elapsed between administration of the first and second scales.

when the TASC was administered first in sequence. However, when GASC was administered after the TASC, scores on it were lower—showed less anxiety—than when GASC was administered before the TASC. The mean score on the lie scale, embedded in the GASC, went up as a consequence of being administered in second position.

A second study concerned the effects of serial position of administration of the scales on responses of English grade school children. Here, instead of a counterbalanced order of presentation, both scales were administered twice, in the TASC-then-GASC order each time. Analysis of change from test to retest showed that both the TASC and GASC yielded lower means for both boys and girls on retesting after a year than on the original administrations of the scales.

A third study, employing children from the same population used in the first study, was concerned with the degree of position effect as a function of whether a scale was administered three weeks or a year after a previous administration of an anxiety scale. The position effect was not so strong after a year as after three weeks. That is, the decrement in mean score was greater after an intertest interval of three weeks than after one of a year. Another revealing effect was discovered, independent of the position effect. It had been found repeatedly that boys had lower means on both the TASC and GASC than girls. In this study, however, the experimental design allowed a comparison of boys with girls as to the extent that they differed on the two scales. It was found that there was significantly less difference between boys and girls on the TASC than there was on the GASC. We concluded that there were more items relevant to girls' fears and worries on the GASC than on the TASC. Another way of stating the same thing, perhaps, is that the boys were more prone to be defensive, i.e., more prone to answer "no" on the questionnaire about fear of snakes, being alone, and worrying about their relationship with others, etc., than they were about fear of failing a test or doing poorly in answering questions posed in class. The GASC apparently has more "sex bound" items than does the TASC.

Defensiveness as an explanatory concept has figured large in our thinking about sex differences. Our explanation of the position effect started at the point of finding significant differences between means of boys and girls on both the TASC and GASC as well as on the lie scale. Boys tend to have lower scores on TASC and GASC and higher scores on the lie scale than do girls. In Chapter 9 we have considered this difference to reflect a tendency on the part of boys to defend against admitting worries or fears, and that this defensiveness was the boys'

expression of their masculinity. We saw in these sex differences a response by boys to the pressure put upon them in our society not to be girlish, weak, or like a "sissy." The nature of boys' tendency to refuse to admit to any worries or fears has been revealed in their tendency to have high lie scores. Girls' higher TASC and GASC scores are to be interpreted as not necessarily reflecting a higher degree of anxiety, but rather of showing less defensiveness against affirming the questions about worry or fears which appear in the TASC and GASC.

We also interpret the position effect as emanating from defensiveness—a build up of defensiveness between administrations of scales. Both our studies and those reported in the literature show a consistent and marked tendency for self ratings on anxiety (and other) questionnaires to change from first to second presentation in the direction of increased social acceptability of self image portrayed. That this change does not show a real change in anxiety, for example, is perhaps clear from the consistency of the trend but is quite well indicated in our English studies. There, both the TASC and GASC were administered twice, a year apart. The first year they were administered to fourth grade pupils and the second to the same pupils now in the fifth grade. The fifth grade administration was just prior to the all important national examinations, a time of greatly increased concern with tests and school performance in general.* In spite of this increased pressure scores on the readministered TASC and GASC were similar in trend to those reported in the literature and dropped significantly.

If the position effect is really a result of increased unwillingness to see oneself in a socially unacceptable light and if we expect greater defensiveness in boys than in girls, then we should expect a greater position effect for boys than girls. The third study did not reveal such a difference. A fourth study, however, did show a sex difference in defensiveness.

The fourth study had as its object to find (a) whether a time interval between administration could be found which cut down on the magnitude of the position effect, and (b) whether sex affected the degree to which the time interval influenced the magnitude of the position effect. The subjects were 92 third grade boys and girls, half of whom had been administered the TASC and GASC, in that order, with a three-week interval and half of whom had received the scales, in the same order, with a five minute interval. Hence one group had the opportunity to talk about and reconsider answers to questions on the

* These are the 11+ examinations so labeled because they follow the eleventh birthday of most fifth graders.

TASC before answering the GASC but the other group, which made three figure drawings in the five minute interest interval, had no such opportunity

The assumption behind administering the two scales in the same sitting, without an opportunity for subjects to interact, was that a longer intertest interval, with peer pressure to appear in the best light (least afraid or worried), would be effective in reducing admissions of worry or fear on the questionnaire administered second. Eliminating this opportunity in the test retest procedure was a way of examining the validity of this assumption

The results indicated (a) that the position effect was significantly reduced under the five minute condition relative to the three week interval, and (b) that the relation between magnitude of the position effect and time interval was different for boys than for girls. That is, the results indicated a sex-interval interaction. While girls showed a large decrement in position effect with the five minute interval as compared to the three week interval, boys showed only a small decrease in the effect with the five minute interval. The fact that boys' defensive tendencies to deny anxiety on the scales are less affected by a short interval between scale administrations than are girls' is in keeping with our interpretation of the position effect as an indication of defensiveness. It is quite possible that boys, being more defensive than girls against admitting weakness (fear or worry), are defensive enough to be sensitive earlier than are girls to the implications of their saying "yes" on the scales. Perhaps even while answering the items to the first questionnaire, boys are developing a tendency to deny the fears and worries found in the scale. Gordon (1952) has found that just such a build up of defensiveness of denial *within the administration of a single scale* is present in responses of both male and female college students. It is not unreasonable to presume that this build up is present in children's responses to scales of a content similar to those used in the Gordon study. If, in addition, we see reason for a sex difference in defensiveness deriving from sex role socialization pressures, then it seems reasonable to interpret the sex interval interaction of the fourth study as a reflection of a sex difference in defensiveness.*

* We have presented an alternative explanation of the interaction of sex with time interval in Sarnoff et al (1958). In the design of the fourth study, if time interval were to have an effect on degree of defensiveness then it would have to be evaluated in that design by comparing the second scales of each interval group. This was necessary because no control group receiving the GASC only, was included in the design and there was no counterbalanced order of presentation. The statistical analysis which yielded the results we have reported were based therefore upon scores on the GASC only, since that was the scale ad-

A FIFTH STUDY ON THE POSITION EFFECT

The foregoing studies provide an introduction to the position effect as a phenomenon in sequential administration of scales which is of great significance for practical and research applications of personality scales. It is necessary that such a phenomenon be investigated on its own. Such inquiry will be concerned not only with ways of eliminating this artifactual influence but also with the theoretical importance of this kind of defensive behavior. Theoretically oriented research, as opposed to methodologically oriented research, would investigate the nature and sources of individual differences in a tendency to defend and to show a position effect. Methodological investigations, using the information gained through more basic, theoretically oriented research, would study ways of eliminating the need to defend against "admissions" of anxiety, fear, etc., by, for example, disguising items so as to make them seem innocuous.

In order to satisfy ourselves that the position effect was a stable phenomenon in children's responses to scales presented sequentially, we carried out a study with a group of sixth grade children in a different school system from any studied previously. We employed a test-retest design for the study rather than counterbalanced orders of administration of the GASC and TASC. The GASC and TASC were both administered twice, with a four month interval between administrations.*

To understand the nature of the position effect more fully, we introduced two variations into this test-retest design. These variations were level of mental ability and type of administrator of the scales. Intelligence Quotients from the Otis Beta test were available for every

ministered second to both five-minute and three-week interval groups. By analyzing only the GASC scores, however, we included in our comparison the influence of sex differences on the GASC. There was, it will be remembered, a large sex difference in responses to the GASC: boys were considerably lower (less anxious) than girls. Therefore, the fact that boys showed less difference between five-minute and three-week interval group means than girls did may well indicate that boys are more prone to deny items on the GASC in general than are girls. A more elaborate experimental design, including counterbalanced presentations of the TASC and GASC, is required for an unequivocal answer to this doubt. In any case, the results of the analysis support the notion that there is sex difference in defensiveness.

* Each "administration" consisted of (a) presentation of the GASC, (b) approximately a five-minute interval during which the children drew pictures of a man, a woman, and a house, and (c) presentation of the TASC.

child of the sixth grade. Two types of administrator were used: the teacher, a familiar administrator, and one of the authors, who was unfamiliar to the pupils. Almost completely confounded in this variation in type of administrator was sex of administrator—almost all of the teachers were women. Hence any difference attributable to this source of variation would be ambiguous, whereas no difference ascribable to this variation would indicate that neither sex nor familiarity of administrator had a significant influence on scores.

Forming the Experimental Groups. Eight experimental groups were composed, each with 40 children. Four of the groups were made up of boys and four of girls. One group was composed of boys from classrooms which had been administered the scales first by the teacher (T) and second (four months later) by the outside investigator. We shall refer to the outside investigator by the letter E. This first group, therefore, was the T-E administrator-sequence group. A second group of boys were composed from classrooms which were administered the scales on both occasions by the teachers, first in January and then again in May, and may be referred to as the T-T administrator-sequence group. The other two groups of boys were selected from classrooms which received the scales in the E-T sequence and the E-E sequence, respectively. The four groups of girls were likewise composed from classes administered the scales under the four administrator-sequences, T-E, T-T, E-T, and E-E.

Scores on first and second administrations of the scales were evaluated for the effects of sex, IQ, administrator-sequence, and position along with the interactions among these effects. Since primary concern was with the position effect, we present results on its significance first, then results relative to the effects of sex, IQ, and administrator-sequence upon position effect scores, and last, results concerning the effects of sex, IQ, and administrator-sequence on raw scores of the scales. First we review the results concerning the TASC and then those relating to the GASC. However, because we had prior hypotheses concerning the different effects of specific administrator-sequences, we discuss them at this point and then turn to the results of analyzing the data.

Our principal hypothesis about the effects of particular administrator-sequences concerned only two of the sequences: the T-E and E-T sequences. We felt that children respond to the scales more frankly and less defensively when their own teacher (T) administers the scales (both the TASC and GASC) than when a stranger (E) administers them. Thus, under a T-administration, scores would be somewhat higher than under an E-administration. If this were true, it would

follow that from test to retest the T E sequence would yield a greater decrement in score (position effect) than the E T sequence. A secondary hypothesis was that these two administrator sequences would yield a larger position effect (decrement from test to retest) on both scales than would either the E E or T T sequence. This hypothesis was based on the assumption that while the E administration might yield generally fewer acknowledgments of anxiety than the T administration, the increase in tendency to prevaricate and/or unconsciously defend against admitting weakness or faults on the scales would be less when the pupils were again confronted on the second testing by the same person.

Each of the hypotheses * was testable through a trend analysis of the sort recommended by Abelson and Morrisett †. It was of some interest to see whether the differences among the four administrator-sequences were large enough to stand out significantly in an overall F test in the analysis of variance, but our principal interest was on the particular patterns among the means of the groups described in our two hypotheses. We now turn to the results of analyzing GASC and TASC scores.

Results of the Analysis of TASC Scores The significance of the effect of position on TASC scores was tested in the following manner: each subject's score ($N = 320$) on the second administration of the TASC (T_2) was subtracted from his score on the first administration of the TASC (T_1). These scores (score = $T_1 - T_2$) were called *position effect* scores because they would measure the difference between scores on first and second positions of the scale. If no consistent position effect were operating, then these scores would vary positively and negatively around zero, and would sum to zero. If a position effect such as the one already reported were operating, then the second score would tend to be smaller than the first and the position effect score would tend to be positive. To be statistically significant, the position effect mean would have to be significantly different from zero as tested by the t test of the difference between correlated means. The value of t found for the TASC position effect mean was 8.77, which shows that the mean difference between first and second TASC scores (the mean position effect) was significantly different from zero beyond

* It is worthy of mention that both hypotheses concern comparisons which are experimentally independent of each other. The outcome of a test of one hypothesis in no way is dependent upon (or correlated with) the outcome of a test of the other.

† R. S. Abelson and L. N. Morrisett. After the over-all F test, what? Unpublished manuscript.

the .001 level of probability. The data indicate that the average drop in TASC score was 2.68 points.

All position effect scores were subsequently cast into an analysis of variance design to evaluate the influence of IQ, sex, and administrator-sequence on the TASC position effect. Results of this analysis revealed that two factors affected the degree of decrement from test to retest of the TASC; one was strong, the other weak. The stronger effect was that of administrator-sequence ($p < .025$). The weaker ($.10 > p > .05$) effect was an interaction of sex of pupil with administrator-sequence (or administrator sex*). This latter effect placed a qualification upon interpretation of the former, stronger effect. That is, while it was true that administrator-sequence had an effect, it appeared that this effect was different for boys than for girls.

The specific nature of administrator-sequence effect on change of TASC score from test to retest is best seen graphically in Figure 8. Analysis of the position effect scores on which Figure 8 is based showed no support for either our principal or our secondary hypothesis concerning administrator-sequence effect. Hence it is necessary to reject our assumption that children are more frank in answering TASC questions with their own teachers and more defensive with an un-

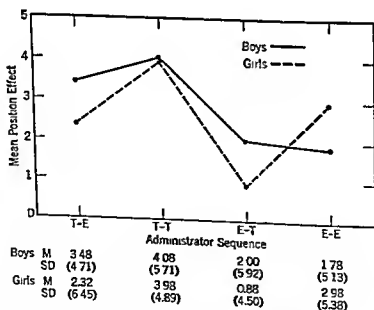


FIGURE 8 TASC position effect means for boys and girls in the four administrator-sequence groups (For each plotted point $n = 40$)

* The reader will recall that administrator-sequence was almost completely confounded in this study with sex of administrator.

familiar test administrator. Perusal of Figure 8 reveals that defensiveness is greater whenever the teacher administers the TASC first and less whenever the stranger administers the TASC first. This trend holds regardless of who administers the TASC second.

However, while the effects of administrator-sequence appear roughly parallel for girls and boys in the T-E, T-T, and E-T sequences, the effects are reversed for the sexes in the E-E group. While girls are less defensive in the T-E, T-T, and E-T sequences, they appear more defensive in the E-E sequence.

To summarize: (1) There were no effects of sex or intelligence on position effect. The more intelligent children did not differ in degree of position effect from the less intelligent children. (2) There was an over-all effect of administrator-sequence on degree of position effect, but one which was somewhat different for boys than for girls. Boys showed a greater position effect under the T-E, T-T, and E-T sequences; girls had a greater position effect mean under the E-E sequence.

Results of the Analysis of GASC Scores. Evaluation of GASC scores was through analyses exactly parallel to those of TASC scores. The overall significance of the position effect was tested, again, by the *t*-test for the difference between dependent means. The value of *t* was 12.83, $p < .001$. The difference between the first and second administration means evaluated by this *t*-test was $13.67 - 10.18 = 3.49$. That is, while the mean score on the first GASC was 13.67, scores dropped an average of 3.49 points on the second GASC to yield a mean of 10.18.

Analysis of GASC position effect variance was based on means presented graphically in Figure 9. The analysis revealed that the variations in administrator and levels of intelligence which we introduced into this study had no over-all effect on the degree to which children changed their GASC scores over the four-month interval. Nor did sex of pupil affect the degree to which scores changed over this period of time. When our hypothesis concerning the particular effects of the E-T sequence compared to the T-E sequence was evaluated, we found that, as in the TASC scores, it was not supported. Our assumption that children are more open or frank and less guarded in their responses to the GASC with the teacher than with the outside administrator is apparently false. Neither the TASC scores nor the GASC scores reveal this trend.

In summary, no meaningful differences among administrator-sequence groups or between sex groups were found in position effect scores derived from the GASC. However, there were real and stable differences between TASC position effect means of administrator-

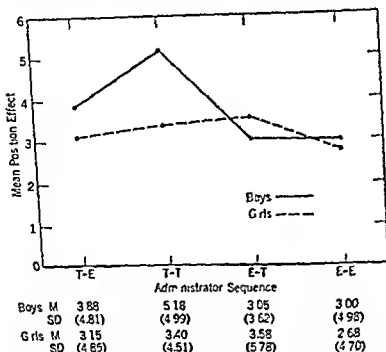


FIGURE 9 GASC position effect means for boys and girls in the four administrator-sequence groups (For each plotted point $n = 40$)

sequence groups when both boys' and girls' scores were combined. While the particular pattern of differences was not what we expected, the pattern obtained does reveal stable differences in position effect mean between administrator sequence groups.

The largest single position effect occurs, for both scales, when both first and second administrations are by the teacher. In general, the position effect is largest whenever the teacher administers the scales first, regardless of who administers them second in sequence. Since over all differences among the four experimental groups were not significant for the GASC scores, we confine our remarks in the remainder of this section to differences found among TASC means of the four groups.

The smallest position effect occurs when the outsider administers the scales first, regardless of whether he or the teacher administers the scales second. Thus the pattern of differences seems to reflect the influence of who administers the scales first.

Two factors, working separately or in combination, appear to explain the obtained pattern of differences. The first factor concerns the effect which administering the scales has upon the teachers themselves. In administering the questionnaires, teachers probably become more in-

involved in the content of the questions and more interested in pupils' answers than they do when listening to an outsider (E) read the questions to the children. As a result there may well be more classroom discussion of the questions and/or references to individual items initiated by the teacher in weeks subsequent to the first administration. As our study on time interval effect indicates, when there is increased opportunity for discussion or private consideration of answers to the questions between administrations of the questionnaires, there tends to be a significantly greater position effect or defensiveness against admitting worries or fears. The teacher is in a position to foster discussion of the questions and, being more likely to do so after having read the questions herself on the first administration of the scales than after having listened to the questions (or having been absent from the room) while E administered the scales, is thus more likely to engender a position effect when she administers the scales first.

The second factor operating to produce a greater position effect when teachers administer the TASC first concerns the effect of such an administration on pupils. This influence concerns the interpretation by the pupils of the scales and the significance of their answers to them. The presentation of the scales to the children is undoubtedly a very different kind of experience from that with which they are ordinarily involved. Part of the administration format is familiar to the pupils; however, the teacher is asking pupils questions. Ordinarily, this is the way teachers examine the pupils, and there is likely to be at least some suspicion by the pupils that they are being evaluated by the teacher. There is for this reason some attempt by pupils to find the correct answers to questions. When the teacher rather than the outsider, presents the TASC first, there is a greater likelihood that the children will interpret the scale and their answers to it as important for their marks in school. Such an interpretation carries with it the notion that "wrong" answers will be noted by the teacher and too many "wrong" answers will incur punishment.

However, on the first presentation of the questions, the tendency to find the "right" answers is probably less than on the second presentation, after a time during which a greater sensitivity has been developed concerning what are the "right" and "wrong" answers.

A second presentation of the same questionnaire would in all likelihood cause pupils who had originally interpreted the scales as some sort of school test to be much more careful to avoid the "wrong" answers—those which would put them in an unfavorable light. Since interpretation of the TASC as a school test is more likely when the teacher administers it the first time than when the outsider presents it,

the tendency to deny fears and worries on a second administration could be greater for those pupils who had been administered the TASC first by teachers

Effects of Sex and Administrator Sequence on First and Second TASC Administrations In order to interpret the effects of administrator sequence on the TASC more clearly, it is necessary to evaluate separately the effects of these different sequences on scores of the TASC when administered first and second in sequence. We found that whenever teachers administered the TASC first there was a greater position effect than when the outsider administered it first. There are three possible sources of such an effect. First, the teachers may have the effect of increasing initial TASC means relative to those obtained when the outsider administered the scale first, thus making a larger decrement from initial to second administration possible. The second way in which teachers may produce a larger position effect is by inordinately decreasing second TASC means relative to those obtained when the stranger administered the scale second. The third way in which the obtained effect could have been caused is through a combination of the two ways just mentioned. Even though teachers (compared with the stranger) may not have a statistically significant effect on the TASC administered first, or a statistically significant effect on scores of the TASC administered second, there still may be a combined effect on both administrations sufficiently strong to produce the obtained position effect difference between teacher and stranger administrator-sequence groups. Simply by looking at the size of the position effect scores, it is impossible to determine which of these effects was being manifest. We may determine precisely which kind of influence the teachers had upon the position effect only by testing their effect upon each administration of the questionnaire separately. This information, together with the information already available concerning the position effect, provides an unequivocal interpretation of the nature of the teachers' influence on the position effect.

To summarize the analysis to this point. We have been concerned with the position effect. This has been defined operationally as the simple algebraic difference between scores on a scale administered first and scores on that scale when administered second, after a four month interval. So far we have not been concerned with the actual scores obtained by pupils on a scale but only with differences between the two scores obtained by each pupil on two occasions. However, to interpret the effect of teacher administration upon the difference between pupils' scores on a scale administered on the two occasions, we must know the effect of teacher administration upon the two sets of

scores themselves, separately. Figure 10 will aid our discussion at this point. Each group of pupils obtained an average anxiety score when the TASC was administered first and another average anxiety score when the TASC was administered second, four months later. These means are represented, for each of the eight experimental groups, in two columns in Figure 10. The change from first to second administration is indicated by a line connecting means of the same group on the two separate occasions. In this figure we can see the differential effects of the two administrators (T and E) on means of first administration, means of second administration, and on differences between administrations.

First of all, the uniformity of the direction of the slope is to be noted. This reflects the general trend, reported above, for means on the TASC administered second to be less than on the first administration of the TASC, regardless of sex of pupil or administrator-sequence. Secondly, a uniform sex difference on TASC means is present. This is not a sex difference in position effect, but a sex difference in absolute magnitude of TASC score, regardless of whether the score is from the TASC when administered first or from the TASC when administered second

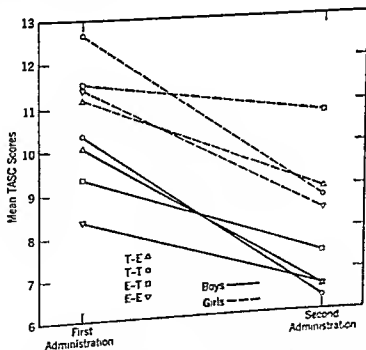


FIGURE 10. Mean TASC scores of pupils in each administrator-sequence group. (For each plotted point $n = 40$.)

in sequence. Analysis of variance of scores on first and second administration of the TASC indicated that this sex difference was significant well beyond the .001 level of probability. In the third place, it can be seen that when teachers administered the TASC first there tends to be a larger discrepancy (position effect) between first and second administrations than when the outsider administers the TASC. This, also, has been reported above. But it is further evident from Figure 10 that the teachers' effect is not one which significantly influences scores on first or on second administration separately, but rather that there is a combined effect on both first and second administrations which does produce a significant influence on the difference between scores on first and scores on second administrations. Thus, while teachers as scale administrators exert no significant influence on TASC scores when they are considered separately for either first or second administration, they do exert a significant influence when differences between the scores on the two administrations are considered.

The nature of the influence of teacher administration of the TASC is clear: their effects are not immediate and do not make themselves felt upon scores of the TASC in its first administration in a dual sequence. However, those pupils who were administered the TASC first by teachers drop more from test to retest than do those pupils who were administered the TASC first by the outsider.

The Influence of the Position Effect on the Validity of the Scales
So far we have been concerned with the influence of second position upon means of groups being administered the two scales. It behooves us to consider the effects of second position upon correlates of the scales. For example, does the TASC correlate as highly with variables when it is administered second in sequence as when it is administered first?

Our evidence on this question is not as full as we should like it to be, but it does provide a basis for at least a tentative conclusion. The evidence which is available consists of correlations of TASC and GASC scores with each other and with IQ. As we have indicated in the previous chapter, we expected a negative correlation between TASC or GASC and IQ and a moderate and positive correlation between TASC and GASC. Generally, these expectations hold quite true. If second position of administration affects the validity of the TASC and GASC adversely, we would expect the correlations among TASC, GASC, and IQ to drop significantly. Table 19 presents the correlations for each administrator sequence group separately for boys and girls. The reader will recall that each of these eight groups consisted of 40 pupils. When comparisons are made between the correlations of first administration

TABLE 19

Correlations among TASC, GASC and IQ * for Both First and Second Administrations † of TASC and GASC

Adminis- trator- Sequence	Girls			Boys		
		TASC	GASC		TASC	GASC
T E	GASC	54		GASC	59	
		60			61	
	IQ	- 40	- 43	IQ	- 30	- 39
		- 33	- 39		- 19	- 19
T T	GASC	51		GASC	56	
		69			42	
	IQ	- 39	- 11	IQ	- 22	- 09
		- 28	- 10		- 24	- 04
E T	GASC	70		GASC	72	
		75			09	
	IQ	- 39	- 25	IQ	- 60	- 02
		- 28	- 20		- 38	- 14
E E	GASC	62		GASC	77	
		63			45	
	IQ	- 34	- 20	IQ	- 36	- 05
		- 35	- 38		- 34	+ 27

* Intelligence Quotients were derived from a single administration of the Otis Beta (group) test, form EM, in the sixth grade, approximately five months prior to the first administration of the scales

† The correlation coefficients are presented in sets of two. The coefficient on top indicates the extent of correlation for the first administration of the scales, the coefficient below it represents the extent of correlation for the second administration of the scales. For example, .54 is the r between scores on the first administration of the TASC and the GASC and .60 is the r between scores on the second administration of the two scales

of the TASC with IQ and those of second administration of TASC with IQ, it is found that in six of the eight groups the correlations with IQ are lower when TASC scores of second administration are considered. Correlations between TASC and GASC are higher on *second* than on first administration of the scales in five out of the eight groups. It is clear that no significant trend toward decreased validity of the TASC or GASC is apparent in these data. Thus, while there is a strong tendency for pupils to score lower on both scales on second administration than on first, it appears that their *rank order* within the distributions does not change markedly from test to retest.

This tendency for subjects to maintain their rank order within group distribution is borne out by test retest "reliability" coefficients (after the same four month interval) presented in Table 20.

TABLE 20

Test Retest Correlation Coefficients of the TASC and GASC
for the Eight Administrator Sequence Groups (Each
Coefficient Based on 40 Cases)

Administrator Sequence		$T_1 T_2$	G_1-G_2
Girls	T-E	622	794
	T-T	771	775
	E-T	781	665
	E-E	648	732
Boys	T-E	605	639
	T-T	642	736
	E-T	549	754
	E-E	651	649
		$r_{tt} \text{ ave} = 666$	$r_{tt} \text{ ave} = 723$

Influence of the Position Effect on Variation in Scores No significant differences or distinguishable pattern was found in changes of standard deviations from first to second administration of either of the scales.

Lie Score and Position Effect The reader will recall that we have construed the position effect to be a reflection of a build up in defensiveness against admitting fears or worries. The presentation of the first scale followed by an interval of time during which children may privately consider or openly discuss the implications of their answers seems to arouse in them an antipathy to answering "yes" to questions

concerning experiences of fear or worry. In some children however there seems to be such an antipathy, and a strong one, evidenced in their answers to questions on the first administration of a scale. Since the questionnaires depend upon the uncensored answers of the children, such an antipathy tends to undermine the questionnaire's validity.

In order to have some control over this antipathy or defensiveness against admitting to fears or worries, we developed the lie scale for children which has been described in Chapter 5. The questions in the lie scale are so constructed that those children answering "no" to a large number of them (usually 9 or more out of the 11) are considered to be unusually defensive and are omitted from the present studies. Because the lie scale was developed to apprise defensiveness it was quite possible that lie scores on the first administration of the TASC and GASC would be related to the degree to which scores on the TASC and GASC dropped from first to second administration. That is, if the lie scale measured defensiveness and the position effect was due to an increase in defensiveness the lie scale might well be a useful predictor of the position effect.

Another variable which might be expected to predict the position effect in some measure was intelligence. It was at least plausible that the more intelligent children would be more aware of the implications of answering questions of fear or worry content in the affirmative. In addition to lie scale score and intelligence it was thought possible that an artifactual effect might operate so as to make position (high or low) on the initial scale predictive of change from the initial to second scale score.

Since several variables suggested themselves as being predictive of the position effect it was decided that the data of the fifth study, reported above, should be cast into a multiple prediction equation to evaluate the relative merits of the several predictors. Separate analyses were carried out for each of the eight experimental groups in spite of the small number of subjects in each because we felt mean differences between groups might unduly obscure trends in an analysis based on combined scores. Each analysis consisted of evaluating four scores as predictors of the position effect score. The four predictor scores were intelligence, initial TASC score (T_1), initial GASC score (G_1), and initial lie scale score (L_1). The results, summarized in Table 21, bear comment.

First of all, it became apparent early in the analysis that the highest single predictor of position effect on a given scale was generally the score on that scale as administered initially. That is, the best TASC

TABLE 21

Multiple Correlation Coefficients and Highest Single Predictors of the Position Effect Scores (Each Coefficient Based on 40 Cases)

Adminis- trator- Sequence		TASC		GASC	
		Boys	Girls	Boys	Girls
T E	R	.557 *	.502 †	.433	.222
	HSP †	T_1	L_1	G_1	G_1
	r_{\S}	.477 *	-.453 *	.301	.144
T-T	R	.557 *	.349	.634 *	.306
	HSP	T_1	T_1	G_1	T_1
	r	.541 *	.339 †	.366 †	-.162
E T	R	.549 †	.363	.761 *	.455
	HSP	T_1	T_1	G_1	G_1
	r	.503 *	.313	.416 †	.399 †
E-E	R	.582 *	.532 †	.743 *	.327
	HSP	T_1	T_1	G_1	G_1
	r	.489 *	.489 *	.668 *	.186

* $p < .01$ † $p < .05$ ‡ Highest single predictor T_1 indicates scores on initial administration of the TASC L_1 scores on initial lie scale, etc§ r here is the correlation between HSP and the position effect scores

position effect predictor was the score on TASC when it was administered first (T_1). Likewise, the best predictor of the GASC position effect was the G_1 score. Because of this tendency, the question to be answered by the multivariate analysis was no longer "Which predictor is best?" but rather became "Do scores other than initial score add anything significant to the predictive power of initial score alone?" For example, we were now asking "Do IQ, G_1 and L_1 add significantly to the power of T_1 to predict the position effect of TASC (i.e., to predict $T_1 - T_2$)?"

As the size of the multiple correlation coefficient (R) indicates, there is a statistically significant relation over all between the four predictors, taken as a composite variable, and position effect. While individual values of R vary in their significance level, the trend is very strong and any combination of the R 's would, by the consequent gain in degrees of freedom, be quite significant statistically.

It will be noted from Table 21 that there is a strong tendency for

the value of the highest single predictor (usually the initial scale score) to approach the magnitude of the multiple correlation coefficient R . This trend was reflected in statistical analyses evaluating the contributions of the four predictors. So close was the correlation between score on initial scale and position effect score to the correlation between *all* predictors (including T_1 and G_1) and position effect score that *predictors other than score on initial scale added nothing significant to the predictive power of the initial score alone*. The only exceptions concerned the GASC position effect and were from the boys of the T T and E T administrator sequences. In those groups T_1 tended to act as a suppressor variable. L_1 and IQ adding together significantly to explain position effect variance.

In sum, it can be said that neither lie score nor IQ contribute to the prediction of position effect. Before discussing the implications of this and the predominant predictive power of initial scale score, however, it is well that we take note of a well formed pattern reflected in Table 21. We refer, of course, to the ubiquitous sex difference noted and discussed at length in Chapter 9. In every instance of comparison between boys' and girls' values of R or HSP, the predictive power is larger for boys. That is, the factors which influence the boys' tendency to drop in TASC or GASC score from initial to second testing are much more similar to the factors which influence their answers to the initial presentation of either scale than is true for girls. In other words, for boys the position effect is more related to score on initial presentation of a scale than it is for girls.

If we are to pursue the position effect as an indication of a build up of defensiveness, we are led to conclude that for boys answers to either scale are at least partly a function of the individual boys' degree of defensiveness. On the other hand, the correlation between position effect and score on initial scale can be interpreted conversely. That is, there is enough evidence on the validity of the GASC and TASC to suppose that the correlation which exists between these scales and the position effect which attends their repeated administrations indicates that individual differences in defensiveness are to some degree a function of anxiety.

Both of these interpretations are challenged by an obvious statistical interpretation of the effect as an artifact, however. This interpretation is that individual differences in position effect are most parsimoniously considered a function of individual differences in distance from the lowest possible score on the initial presentation of a scale. In test makers' jargon, individual differences in position effect are a function of a "floor" effect of the scale itself. Such an interpretation argues that

those originally low on either scale cannot have a large position effect simply because they cannot get a much lower score on a second testing. It could be argued that if there were more items on the scale and if almost everyone had "room" to move downward in score on a second testing, then individual differences in position effect would no longer correlate with those inherent in score on initial scale. In fact, there might even be a more robust relationship between position effect and lie scale score owing to the greater variation possible with more items. At any rate until a longer version of the present scales is developed, evidence bearing on the interpretation of the correlation between initial scale score and position effect score as an artifact, a "floor" effect, will be lacking.

The principal purpose of the multivariate analysis presented above was to ascertain if lie scale score had the expected position relative to position effect and, secondarily, to find whether IQ was at all related to position effect score. In general it was found that neither the lie scale nor IQ related to degree of position effect. In fact, in 14 of 16 possible opportunities the correlation between lie score and position effect score was negative. It should be remembered, however, that a consistently negative correlation exists between TASC or GASC score and lie scale score.* Since both TASC and GASC correlate positively with position effect score, the negative correlation between lie scale and TASC or GASC would tend to produce a negative lie scale position effect correlation. The lie scale is "too closely" related to both TASC and GASC, but negatively related, to yield anything but a negative correlation with position effect score.

As a consequence of the above reasoning it follows that the lie scale itself is not as much a measure of defensiveness as our original expectation assumed, and has rather more of the anxiety factor of both the TASC and GASC scales than we would like. It may be that extreme scores on the lie scale do indeed reflect defensiveness but that when the lie scale is used as a continuous variate it operates more like a negatively scored anxiety questionnaire (where the number of "no" answers instead of the "yes" answers are counted).

A secondary interest in the multivariable analysis was the effect of intelligence on degree of position effect. We found that IQ derived from Otis Beta scores, added nothing significant to account for variation in position effect. This finding, if stable, is important for future investigation of the position effect. The results indicate that the posi-

* In these particular data they range from -19 to -73 with an average of -448 for TASC and -439 for GASC. These are significant well beyond the .001 level of probability.

tion effect is general with respect to intelligence and that intelligence need not be included as a control or variate in experimental designs

SUMMARY

We have presented several studies concerning what we have called "the" position effect. Results are generally in keeping with other studies reported in the literature. Of first importance is our assumption that in the several studies in which "it" has been observed, the phenomenon has operated in the same way and has been the result of the same factors. We have assumed, in short, that the position effect is a single phenomenon and not a similar appearing result brought about by diverse situational and psychological factors. By "position effect" we have referred to the tendency of children and adults to score lower on a structured personality scale when it is presented in *second* position of a dual administration of such scales relative to score on the scale presented first. This tendency is apparently present whether or not the scale presented in the first position is identical to that presented second, so long as that presented first is a structured personality scale. Little is known concerning the effect on scores of a personality scale of prior administration of either an unstructured personality scale (e.g., TAT or Rorschach) or of an appraisal of intellectual ability (e.g., WISC or Otis Beta). The position effect discussed here attends dual administrations of structured personality scales only. Furthermore, the position effect appears to be purely a *mean* effect and is not such as to change variation or covariation from first to second administration of a scale. So far as our data show, the correlations of both TASC and GASC with IQ and the lie scale remain comparable from initial to second administration of the scales. The test retest correlations range from .55 to .78 for TASC and from .64 to .79 for GASC, and average .67 and .72 respectively. Likewise, the variances of the initial scales do not differ from those of scales administered second in sequence.

Aside from the very existence of the position effect, what else have we found out about its characteristics? What factors make for differences in magnitude of position effect? Sex has been found to affect the magnitude of position effect in children in a few studies but the results are inconclusive. Age has not been investigated systematically but a significant position effect has appeared with subjects of the third, fifth and sixth grades with our scales, and of college age as reported by other investigators. Scale content itself has been a variable in our

studies. In the first of these the GASC showed a significant position effect but none was found for the TASC. This difference has not been replicated, however, both scales showing significant effects in subsequent studies. Intelligence, as measured by the Otis Beta group test, has not influenced magnitude of position effect.

The administrator has been a variable of some consequence to the magnitude of the position effect where the scores involved were those of the TASC. Administrator influence was nil on the GASC position effect. The way in which administrators were found to influence the TASC position effect was of interest. Whether the teacher or a stranger administered the TASC did not significantly affect scores of either initial or second administration when considered separately. That is, when scores of teacher administered TASC's were compared to those of stranger administered TASC's within either the initial or the second administration of the scale, there were no significant differences. However, if differences between first and second administered scale scores were computed, and if those yielded by teacher administrations of the initial scale were compared to those yielded by stranger administrations of the initial scale, significant differences were found.

We interpreted this effect of teachers administering the first questionnaire as a function of a joint effect which that type of administration would have upon the teacher and pupil, an effect which would be absent when a stranger administered the initial TASC. The effect on the teacher of *her* administering the TASC initially was presumed to be that she would become more involved in the meaning of and answers to the questions which she read to the children than would be true if she merely listened while a stranger read the questions (or if she were absent from the room as was often the case). Such an involvement would lead to an increase in classroom discussion of the question (an increase relative to the discussion after the stranger administration), and therefore as our study on the influence of time interval suggested, an increased tendency on a subsequent questionnaire to deny what peers were likely to deny, namely fear or worry. The effect on the pupil of the teacher administering the initial scale was presumed to be that the pupil would be more likely to interpret the questions as a part of schoolwork and hence as having right and wrong answers than he would when the stranger administered the initial scale. With the set to find "right" answers pupils would have an increased tendency to answer questions on a subsequent scale in a socially acceptable manner (i.e. to deny fears or worries).

This interpretation of the joint effect on pupils and teacher of the teacher administering the initial TASC is supported by the finding

that when the teacher administers the TASC *both* initially and in second position the position effect is largest of all four administrator sequences. This particular finding is most discouraging since most investigations of considerable size and many of more modest proportions depend upon teachers to administer various personality instruments. Clearly implied by these interpretations is the requirement that outsiders, not teachers administer the scales if any follow up with the children is contemplated.

Another variable has come into our studies to affect the magnitude of position effect. This has been the length of time allowed to elapse between initial and second administration of the scales. One of our studies compared position effects of one year and three weeks. The position effect after a year on either scale was not significant ($20 > p > 10$) but that after three weeks was significant ($p < .001$). In a comparison of another study between the position effect magnitude after five minutes and that after three weeks the magnitude was found to be greater after three weeks. The smaller position effect after five minutes (during which time children drew pictures and did not talk) was predicted to be smaller because of the absence of pupil and pupil teacher interaction. Such interaction was expected to involve discussion of questions and answers with opportunity for derogation of those pupils who admitted being fearful or anxious on the questionnaires. Finally we again found a significant position effect after a four month interval.

We would synthesize these findings in the conclusion that when there is sufficient time and opportunity for there to be discussion about or reconsideration of answers to the scale questions there will be a significant position effect. This will remain true to the extent that the content of such a discussion or reconsideration of the answers is retained in memory. We presumed that the lessened position effect after a year may have been due to fading from memory of the circumstances surrounding the original administration of the scales. However, the study of English school children demonstrated a strong position effect even after a year's duration indicating that this last conclusion will need further inquiry.

A final characteristic of the position effect has been noted. The magnitude of the decrement from first to a subsequent administration of the scales is at least partly a function of how high an individual scores on the scale presented initially. We prefer to consider this an artifact due to the limited length and especially, limited room for low scorers to spread out further in the low scoring direction rather than a meaningful psychological effect. However, any attempt to pro-

vide a correction for the position effect would necessitate important use of individuals' positions on initial scale to predict actual position on a scale administered second in sequence

IMPLICATIONS FOR RESEARCH

The position effect as described in the foregoing pages places a considerable restriction upon research with structured personality instruments. One is either limited to single instance uses of such instruments or one must devise and pretest methods of administering revised forms of questionnaires. At least these restrictions hold true in investigations in which group means are of interest. Perhaps in correlational studies, with proper corrections for between mean correlations, it is possible to employ repeated administrations of this type of instrument. But even this remains to be confirmed: it may be that position of administration does affect correlation and even variation of scores, and that our failure to find this is either a function of content peculiar to our scales or of the small numbers of subjects within groups.

Besides correlational studies, however, the serial administration of different types of personality questionnaires or the repeated administration of identical instruments poses serious problems for personality research as it now is revealed in the literature. Investigations of personality variables rarely are concerned with single traits and it is often necessary to employ more than one structured personality scale to meet the requirements of the design. Administration of different scales in one sitting may well *lessen* the position effect relative to that resulting from administration three weeks apart, but that we may still assume some degree of the effect to be present is clearly shown by Gordon's study in which he found a progressive tendency to deny socially unacceptable content *within* a scale. As a consequence, future investigations of personality variables will either have to be restricted to single instance uses of structured personality instruments or will require a good deal of methodological research on the problem of eliminating or obviating the effect of administration position.

Several alternatives suggest themselves. One general approach for which there are any number of ways in which it could be implemented, is to construct items which more completely involve the children than do the present questions. A brief recorded or even filmed episode of an anxious reaction, or an aggressive reaction or of an interaction of child with teacher could serve as a clear referent point about which the children's thoughts could revolve and concerning which various

kinds of indirect questions might be asked of them. For example, whether they *liked* the episode or this or that character, or if they had been this or that person in the episode what feelings *they* would have had. A series of brief situations in which learning, pupil-pupil interaction, and pupil-teacher interaction problems are depicted might well bring forth consistent but latent and valid responses of value in appraising affective interference with intellectual functioning. With research and ingenuity such a format could be developed to meet administrative requirements of ease and speed.

But perhaps this kind of change in format is unnecessary. It may be that an equal amount of ingenuity and research would pay off at considerably less eventual expense if it were channeled to the development of new disguises for old questions. Filler items, items couched in the third person, and items concerning hypothetical situations might prove useful.

Finally, a third possibility is suggested in the work of Voas (1958). Using conventional items (MMPI and Guilford Zimmerman), two answers ("side by side") were elicited for each item: one pertaining to the self and one reflecting the answer which the respondent believed the "best" adjusted person would give. "Self" answers were significantly less "adjusted" (were more in the socially undesirable direction) than were "best" answers. While these scales were not administered twice and therefore do not provide evidence for the usefulness of the "side-by-side" method for reducing the position effect, the differences obtained do show promise in this regard.

*The test anxiety scale
for children (TASC) and
the general anxiety scale
for children (GASC)*

APPENDIX *B*

My name is _____. I'm going to be asking you some questions—questions different from the usual school questions for these are about how you feel and so have no right or wrong answers. First I'll hand out the answer sheets and then I'll tell you more about the questions.

Write your name at the top of the first page, both your first and your last names. Also write a B if you're a boy or a G if you're a girl. (For the fourth, fifth, and sixth grades, "Write the name of the school you attended last year and year before last year.")

As I said before I am going to ask you some questions. No one but myself will see your answers to these questions, not your teacher or your principal or your parents. These questions are different from other questions that you are asked in school. These questions are different because there are no right or wrong answers. You are to listen to each question and then put a circle around either "yes" or "no." These questions are about how you think and feel and, therefore, they have no right or wrong answers. People think and feel differently. The person sitting next to you might put a circle around "yes" and you may put a circle around "no." For example, if I asked you this question "Do you like to play ball?" some of you would put a circle around "yes" and some of you would put it around "no." Your answer depends on how you think and feel. These questions are about how you think and feel about school, and about a lot of other things. Remember, listen carefully to each question and answer it "yes" or "no" by deciding how you think and feel. If you don't understand a question, ask me about it.

Now let's start by everybody putting their finger on Number 1. Here is the first question Number 1 "Do you worry when _____?" (Repeat this procedure of introducing the questions for several of them and continue throughout to say the number of the question before reading it)

TEST ANXIETY SCALE FOR CHILDREN

- 1 Do you worry when the teacher says that she is going to ask you questions to find out how much you know?
- 2 Do you worry about being promoted, that is, passing from the _____ to the _____ grade at the end of the year?
- 3 When the teacher asks you to get up in front of the class and read aloud, are you afraid that you are going to make some bad mistakes?
- 4 When the teacher says that she is going to call upon some boys and girls in the class to do arithmetic problems, do you hope that she will call upon someone else and not on you?
- 5 Do you sometimes dream at night that you are in school and cannot answer the teacher's questions?
- 6 When the teacher says that she is going to find out how much you have learned, does your heart begin to beat faster?
- 7 When the teacher is teaching you about arithmetic, do you feel that other children in the class understand her better than you?
- 8 When you are in bed at night, do you sometimes worry about how you are going to do in class the next day?
- 9 When the teacher asks you to write on the blackboard in front of the class, does the hand you write with sometimes shake a little?
- 10 When the teacher is teaching you about reading, do you feel that other children in class understand her better than you?
- 11 Do you think you worry more about school than other children?
- 12 When you are at home and you are thinking about your arithmetic lesson for the next day, do you become afraid that you will get the answers wrong when the teacher calls upon you?
- 13 If you are sick and miss school, do you worry that you will do more poorly in your schoolwork than other children when you return to school?
- 14 Do you sometimes dream at night that other boys and girls in your class can do things you cannot do?
- 15 When you are home and you are thinking about your reading lesson for the next day, do you worry that you will do poorly on the lesson?

- 16 When the teacher says that she is going to find out how much you have learned, do you get a funny feeling in your stomach?
- 17 If you did very poorly when the teacher called on you, would you probably feel like crying even though you would try not to cry?
- 18 Do you sometimes dream at night that the teacher is angry because you do not know your lessons?

In the following questions the word "test" is used. What I mean by "test" is any time the teacher asks you to do something to find out how much you know or how much you have learned. It could be by your writing on paper, or by your speaking aloud, or by your writing on the blackboard. Do you understand what I mean by "test"—it is any time the teacher asks you to do something to find out how much you know.

- 19 Are you afraid of school tests?
- 20 Do you worry a lot *before* you take a test?
- 21 Do you worry a lot *while* you are taking a test?
- 22 *After* you have taken a test do you worry about how well you did on the test?
- 23 Do you sometimes dream at night that you did poorly on a test you had in school that day?
- 24 When you are taking a test, does the hand you write with shake a little?
- 25 When the teacher says that she is going to give the class a test, do you become afraid that you will do poorly?
- 26 When you are taking a hard test, do you forget some things you knew very well before you started taking the test?
- 27 Do you wish a lot of times that you didn't worry so much about tests?
- 28 When the teacher says that she is going to give the class a test, do you get a nervous or funny feeling?
- 29 While you are taking a test do you usually think you are doing poorly?
- 30 While you are on your way to school, do you sometimes worry that the teacher may give the class a test?

I've asked you a lot of questions, and I will ask you some more questions soon. But, in the meantime, let's do something different. Turn to the next page—it's a blank page. Draw a picture of a man on this page. Just take a couple of minutes to draw it. I'll tell you shortly before you're to stop. Draw a picture of a man.

(If questions are asked about what kind of drawing, answer "Any kind of drawing you want", if questions are asked about erasing, per

mit it; allow 2 minutes for the drawing; say after $1\frac{1}{2}$ minutes, "You will have to stop soon.")

Turn to the next page. Draw a picture of a woman on this page. Again just take a couple of minutes to draw it. Draw a picture of a woman. . . .

Turn to the next page. Draw a picture of a house on this page. Again just take a couple of minutes to draw it. Draw a picture of a house. . . .

Turn to the last page. Write your name at the top of the page, both your first and your last names. I'm going to ask you some more questions about how you think and feel. Remember, there are no right or wrong answers. Listen carefully to each question and put a circle around either "yes" or "no" after deciding how you think and feel. Number 1. When you are ———

GENERAL ANXIETY SCALE FOR CHILDREN

1. When you are away from home, do you worry about what might be happening at home?
2. Do you sometimes worry about whether
(other children are better looking than you are?)
(your body is growing the way it should?)
3. Are you afraid of mice or rats?
- L 4. Do you ever worry about knowing your lessons?
5. If you were to climb a ladder, would you worry about falling off it?
6. Do you worry about whether your mother is going to get sick?
7. Do you get scared when you have to walk home alone at night?
- L 8. Do you ever worry about what other people think of you?
9. Do you get a funny feeling when you see blood?
10. When your father is away from home, do you worry about whether he is going to come back?
11. Are you frightened by lightning and thunderstorms?
- L 12. Do you ever worry that you won't be able to do something you want to do?
13. When you go to the dentist, do you worry that he may hurt you?
14. Are you afraid of things like snakes?
15. When you are in bed at night trying to go to sleep, do you often find that you are worrying about something?
- L 16. When you were younger, were you ever scared of anything?

- 17 Are you sometimes frightened when looking down from a high place?
- 18 Do you get worried when you have to go to the doctor's office?
- 19 Do some of the stories on radio or television scare you?
- L 20 Have you ever been afraid of getting hurt?
- 21 When you are home alone and someone knocks on the door, do you get a worried feeling?
- 22 Do you get a scary feeling when you see a dead animal?
- 23 Do you think you worry more than other boys and girls?
- 24 Do you worry that you might get hurt in some accident?
- L 25 Has anyone ever been able to scare you?
- 26 Are you afraid of things like guns?
- 27 Without knowing why, do you sometimes get a funny feeling in your stomach?
- 28 Are you afraid of being bitten or hurt by a dog?
- L 29 Do you ever worry about something bad happening to someone you know?
- 30 Do you worry when you are home alone at night?
- 31 Are you afraid of being too near fireworks because of their exploding?
- 32 Do you worry that you are going to get sick?
- L 33 Are you ever unhappy?
- 34 When your mother is away from home, do you worry about whether she is going to come back?
- 35 Are you afraid to dive into the water because you might get hurt?
- 36 Do you get a funny feeling when you touch something that has a real sharp edge?
- L 37 Do you ever worry about what is going to happen?
- 38 Do you get scared when you have to go into a dark room?
- 39 Do you dislike getting in fights because you worry about getting hurt in them?
- 40 Do you worry about whether your father is going to get sick?
- L 41 Have you ever had a scary dream?
- 42 Are you afraid of spiders?
- 43 Do you sometimes get the feeling that something bad is going to happen to you?
- 44 When you are alone in a room and you hear a strange noise, do you get a frightened feeling?
- L 45 Do you ever worry?

*Instructions for
rating scale
used by teachers*

APPENDIX C

As every teacher is aware, children differ widely in their reactions to tests and classroom recitations. However, relatively little is known about how frequently such reactions occur and what their general significance may be. This study, which is being sponsored by the United States Public Health Service, is an attempt to determine as carefully as possible the nature and frequency of children's reactions to tests and classroom recitations. Through such a study we hope to gain an increased understanding of the school child as he adjusts to the everyday classroom situation. At present we have opinions about reactions to tests and classroom recitations—what we need are facts. We are therefore asking your cooperation in rating the children in your class on various kinds of behavior related to tests and classroom recitations. For example, we would like to know how often the child stammers or stutters when he is called on to recite his lessons in class. We have devised a five point scaling system whereby you can indicate by the use of a number from one to five how characteristic this behavior is for the child in question. We have prepared a number of such questions on which we would like you to rate your students. These questions are on the following page. Accompanying the questions we have prepared a form which will permit you to express your ratings of each child. On this form please enter the names of your students in alphabetical order. Next to the names are a series of columns, each one representing a question. You will first read a question, e.g., Question #1: Does the child perform less well in school than your evaluation of his intelligence would lead you to expect? Then

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under the appropriate column, i e , column #1, you will enter opposite a child's name the rating you would assign him After you have rated *all the children on the first question* you will then go to the next column which concerns question #2 In other words, all the children are rated on a question before going on to another question

The rating scale is as follows

- | | |
|-------------------------------|---|
| 1 WILL REPRESENT VERY OFTEN | (THE CHILD IS VERY OFTEN LIKE THIS, IT IS VERY CHARACTERISTIC OF HIM) |
| 2 WILL REPRESENT FAIRLY OFTEN | (THE CHILD IS FREQUENTLY LIKE THIS, IT IS FAIRLY CHARACTERISTIC OF HIM) |
| 3 WILL REPRESENT SOMETIMES | (THE CHILD IS SOMETIMES LIKE THIS, DOESN'T DO IT OFTEN, BUT THERE ARE TIMES WHEN HE IS LIKE THIS IT IS SOMEWHAT CHARACTERISTIC OF HIM) |
| 4 WILL REPRESENT OCCASIONALLY | (THE CHILD IS LIKE THIS ONCE IN A WHILE, IT IS ONLY SLIGHTLY CHARACTERISTIC OF HIM) |
| 5 WILL REPRESENT ALMOST NEVER | (THE CHILD IS HARDLY EVER LIKE THIS IT IS NOT CHARACTERISTIC OF HIM) |

It is understood that some of the ratings will be difficult, but you are asked to reach a decision in each case If you want to register doubt on any particular rating please circle the number you place next to the child's name

In the questions which follow we have used the word *test* in two

INSTRUCTIONS FOR TEACHERS RATING SCALE 313

ways. First we have used it in its usual sense: when one formally attempts to evaluate a child's progress in any area either by means of a standardized procedure (e.g., Stanford Achievement Tests) or one which you yourself have devised (e.g., an arithmetic or spelling quiz). Second, we have used the word test in a more general way to include any situation in which you are attempting to find out how much a child has learned or knows—such as when you ask him to read or send him to the blackboard. We have tried to indicate in each question which of the two ways we have used the word *test*. Where we have not indicated in which way we have used the word *test*, please use whichever meaning allows you to make the most confident rating. You will probably have noticed that the two ways in which we have used the word *test* are from a psychological standpoint essentially the same.

We most sincerely thank you for your cooperation. In any study involving school age children it is obvious that the observations which the teacher makes are absolutely crucial. Without your cooperation the most important source of data will be missing.

1. Does the child perform *less* well in school than your evaluation of his intelligence would lead you to expect?
2. Does the child stutter or stammer when called on to recite even though he does not stutter or stammer in ordinary conversation?
3. Does the child bite his nails when taking a test or at those times when he may be called upon to recite?
4. Does the child seem anxious about getting good marks on tests or on his homework papers?
5. Does the child exhibit unwarranted fidgeting (e.g., squirming, restless behavior) when called upon to recite in class?
6. Is the child nervous when he has to write on the blackboard?
7. Does the child tend to become upset or anxious when a test is announced in class or he is called upon to recite?
8. Does the child function better when working alone than when working before the class?
9. Does the child's voice tremble when he is asked to recite?
10. Does the child's hand show any sign of trembling when he is writing on the blackboard or when he is holding up a book to recite?
11. Does a poor mark on a test or homework paper upset the child?
12. Does the child become upset when he is told that the answer which he has given is wrong?
13. Does the child worry about how well he has done on a test even when he is in no danger of failing?

14. Does the child give an irrelevant answer when he is asked a question and does not know the correct answer?
15. Does the child's illness or physical complaints tend to coincide with test days or class recitations?
16. Does the child worry about promotion more than is warranted by his previous level of performance?
17. Does the child work better in a situation in which he can take his time than in one in which there is time pressure?

The primary mental abilities tests

APPENDIX *D*

Of the PMA tests two use words in their content, and one uses numbers pictures or geometric figures. One of the word tests is the first test in the booklet, a straightforward vocabulary test which requires the pupil (7-11 years of age) to find one of four words which is a synonym for the key or criterion word given in bold print. This test is called the *Word* test of verbal meaning and is given the symbol Vw.

The second test is also a vocabulary or verbal meaning test but the stimuli contained in the booklet are pictures in rows of four pictures each. The pupil is called upon to listen to the word which the test administrator pronounces and to find the picture of the object indicated by that word. This test is called the *Pictures* test of verbal meaning and is assigned the symbol Vp.

The third test evaluates the ability of the pupil to visualize and transpose spatial relations. The format is somewhat like the word test of verbal meaning in that a criterion shape is given for which the pupil is to find the other shape in a series of four which could be placed alongside of the criterion figure to complete a perfect square. This test is called *Space* and is given the symbol S.

The next two tests appraise pupils' understanding and use of concepts. The first of these presents sets of four words each one of which is to be chosen as "not belonging in the group." For example the words "red" "blue" "heavy" and "green" are given in a sample question and the test administrator explains that "heavy" does not belong in the group because it does not refer to color. This test is called the *Word*

14. Does the child give an irrelevant answer when he is asked a question and does not know the correct answer?
15. Does the child's illness or physical complaints tend to coincide with test days or class recitations?
16. Does the child worry about promotion more than is warranted by his previous level of performance?
17. Does the child work better in a situation in which he can take his time than in one in which there is time pressure?

The primary mental abilities tests

APPENDIX *D*

Of the PMA tests, two use words in their content, and one uses numbers, pictures, or geometric figures. One of the word tests is the first test in the booklet, a straightforward vocabulary test which requires the pupil (7-11 years of age) to find one of four words which is a synonym for the key or criterion word given in bold print. This test is called the *Word* test of verbal meaning and is given the symbol Vw.

The second test is also a vocabulary or verbal meaning test, but the stimuli contained in the booklet are pictures, in rows of four pictures each. The pupil is called upon to listen to the word which the test administrator pronounces and to find the picture of the object indicated by that word. This test is called the *Pictures* test of verbal meaning and is assigned the symbol Vp.

The third test evaluates the ability of the pupil to visualize and transpose spatial relations. The format is somewhat like the word test of verbal meaning in that a criterion *shape* is given, for which the pupil is to find the other shape in a series of four which could be placed alongside of the criterion figure to complete a perfect square. This test is called *Space* and is given the symbol S.

The next two tests appraise pupils' understanding and use of concepts. The first of these presents sets of four words each, one of which is to be chosen as "not belonging in the group." For example the words "red," "blue," "heavy," and "green" are given in a sample question and the test administrator explains that "heavy" does not belong in the group because it does not refer to color. This test is called the *Word-*

Grouping test of reasoning and is symbolized by R_w. The second concept test, the fifth test in the booklet, employs sets of four figures. In each set the pupil is to choose the figure which does not belong. For example, three sets of two parallel lines are given with one set of three parallel lines; the pupil is required to use the concept, number, if he is to find the solution. This test is called the *Figure Grouping* test of reasoning and is given the symbol R_f.

These five tests are all given liberal time limits and can be considered to be "power" tests rather than "speed" tests. The last two tests stand in contrast, with time limits imposed which make finishing the tests very difficult for virtually all fourth graders and next to impossible for those in third grade.

The first of these two speed tests is called *Perception* (P) and requires the pupil to pick the two figures from each set of four which are identical. The shape and shading of the figures is such that all four figures look very much alike.

The second speed test, called *Number* (N), is composed entirely of problems of adding numbers. It must be observed here that this restriction of arithmetic operations to adding alone probably yields means and correlations on this test quite different from number tests which include also problems of subtraction or multiplication. In administering the tests it has been our experience that great sighs of relief follow the realization that the test includes "only adding."

Regression coefficients of the primary mental abilities tests

APPENDIX *E*

Standardized partial regression coefficients for the four groups are presented in Table 22. Tests for differences of TASC, GASC, and lie scale coefficients and non parallelism of these coefficients from group to group yielded the results shown in Table 23. These results show that although there are elevation differences, owing to the sex differences in TASC, GASC, and lie scale scores, the regression lines

TABLE 22
Standardized Partial Regression Coefficients with PMA
Tests as Predictors and the TASC as Criterion

Test *	Boys		Girls		Common Regression Coefficients (553)
	Grade 3 (112) †	Grade 4 (153)	Grade 3 (137)	Grade 4 (151)	
Vw	-.16703	-.00838	-.22352	-.22748	-.10056
Vp	-.17412	-.26784	-.48517	-.31097	-.14702
S	-.13343	-.00857	-.09464	+ .02022	-.03216
Rw	-.34142	-.107301	+ .26507	-.21714	-.21183
Rf	+ .05161	+ .04343	+ .03381	-.04901	+ .08290
P	-.05595	-.11891	+ .04209	-.12579	-.02068
N	+ .05516	+ .01645	+ .03257	+ .37714	+ .04627

* Tests are described in detail in Appendix D

† Number of pupils tested

TABLE 23
Summary of Tests for Parallelism of Regression Weights and Differences in Elevation of Regression Planes Described
by the Regression Weights for TASC, GASC, and Lio Scale

Source of Variance	df	TASC		GASC		Lio Scale	
		MS	F	MS	F	MS	F
A Pooled within residual	$N - [G(K - 1)]^*$	37.221		67.113		9.113	
B Common residual	$N - G - K = 512$	36.907		60.929		8.989	
C Difference I (common- within)	$K(G - 1) = 21$	29.017	<1.00 †	51.932	<1.00 †	5.885	<1.00 †
D Total residual	$N - K - 1 = 545$	39.659		89.981		10.413	
E Difference II (total common)	$G - 1 = 3$	530.780	18.18 †	1,251.750	77.16 †	207.809	45.517 †

* N = total number of subjects = 553, G = number of groups = 4; K = number of PMA predictors = 7.

† $F = G/A$

† $F = E/C$, $p < .001$.

are not significantly different from each other in slope. We therefore accept the hypothesis that they are parallel. Since the lines are parallel but different in elevation, the best estimate of a single best-fitting set of regression coefficients is that set based on the "common" regression line. The standardized partial regression coefficients for the TASC based on the one slope common to all four groups, corrected for differences in elevation, are presented with the separate sets of standardized regression coefficients in Table 22.

Since regression coefficients for the four groups separately were parallel, the four sets when corrected for elevation could be considered samples from a single population. Because the common regression coefficients were the best estimates of the regression coefficients of that single population, the question of whether the PMA tests correlated differentially with the TASC could be referred to a test of such differences among the single set of common regression coefficients. Results of this test are included on p. 138 in the discussion of the second hypothesis of the section, "The TASC and Primary Mental Abilities." It was of interest to note which of the seven PMA tests taken singly accounted for significant amounts of TASC variance over and above that accounted for by the other six tests. Using the common regression coefficients, the results of the tests for significance of amounts of TASC variance accounted for are presented in Table 24. It is noteworthy that in every case these correlations are negative.

TABLE 24
Significance Tests of Individual Common Regression
Coefficients, TASC as Criterion

PMA Test	b^2 Common	Common Residual MS	F *	r
Vw	.010113	.002574	3.93 †	-.26
Vp	.021880	.003906	5.60 †	-.23
S	.001034	.006767	.15	-.12
Rw	.045502	.007220	6.30 †	-.25
Rf	.006872	.006069	.44	-.08
P	.000710	.002654	.27	-.12
N	.002141	.002051	1.04	-.08

* $df = 1$ and 542.

† $p < .05$.

‡ $p < .025$.

Parental interview schedules

APPENDIX *F*

FIRST INTERVIEW

Section A (First Day)

1. How old is _____ now?
2. How many other children are there in the family (list by name and age)?
3. _____ attended

	Age	Place
a. Nursery School	_____	_____
b. Kindergarten	_____	_____
c. First Grade	_____	_____
d. Second Grade	_____	_____
e. Third Grade	_____	_____

4. If _____ never went to kindergarten, how come?
5. How much do you think _____ knew about school—what going to school meant—before he started?
6. It may be hard to remember, but could you try to tell me the kinds of things _____ said about school before he started?
7. How did _____ feel about school before he started?

The first day of school is, as you well know, a very important day in the life of a child. It's the beginning of a new way of living for him. Because it is so important I would like to ask you some questions about it, but why don't you try first to tell me now in your own words as much as you can remember of _____ first day in school.

8. Who took _____ to school on that day?
9. How did _____ behave when he met the teacher?
10. What was *your* opinion or impression of the teacher?
11. How long did you stay in the room with _____?
12. What did _____ do and say when you left him?

Note to interviewer: If there was any problem in separation, find out what the *parent* did, the *teacher* did, and the *child* did. Also, ask the parent, "When else did _____ act this way when you left him?" Determine frequency and mode of parental response.

13. When you would think about _____ starting school did you expect that you *might* have some difficulty getting _____ to stay alone in school?
14. When _____ started school what did he say to you about what happened in school that day?
 - a. What kinds of things did he say he did?
 - b. What did he say about the other children in the class?
 - c. Were there children in the class whom he had known before?
 - d. When you saw him after his first time in school, would you say he was:
 1. on the happy side
 2. on the sad side
 3. somewhere in between
 4. it was hard to know how he felt
 - e. What was the difference between _____ behavior on the first day of school and the way he usually was?
 - f. (If there is an older sibling, other children, if not): What difference can you remember between _____ and _____ first day in school?
15. The first day in school is certainly an important one for a child. But it is also an important one for parents. What were your thoughts and feelings about _____ starting school?
16. Taking everything into account, would you say that on the first day of school _____ was (give card to parent):
 - a. not at all afraid of going to school
 - b. a little bit afraid of going to school
 - c. quite afraid of going to school
17. If you were in charge of a school, in what ways would you do things differently than was done on _____ first day of school?
18. On the first day of school, a mother should stay with a child who is upset:

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- a for as long as she wants
 - b for as short a time as possible
 - c for as long as the teacher wants her to stay
 - d until the child has calmed down some
 - e until the child has begun some school activity
- Explain choice.
- 19 We are frequently asked this problem If on the first day of school a child says he doesn't want to go to school, and doesn't want his mother to leave him, what should a parent do? What would your advice be?
- 20 Has _____ gone to Sunday School?
- a When started?
 - b What happened the first day in Sunday School?
 - c (If any difference between behavior in Sunday and regular school, ask parent to explain)

Section B (First Year)

- 1 (If there was any difficulty in starting school, ask the following)
How long did this go on? Why do you think it stopped when it did?
(If very little or no difficulty) Why was that?
2. How long did it take for _____ to get really accustomed to school?
a a day
b a week
c a month
d a few months
- 3 I asked about children not wanting to go to school on the first day Now at some time or other children say "I don't want to go to school today" How do you handle this? About how many times? What were the reasons?
- 4 Very frequently a child has some habits that a parent would like to see changed, and the parent hopes that going to school will help this change along What about _____?
- 5 What important change did you notice in _____ during his first year of school? What were the reasons for this?
What was another important change that you noticed in the first year? What were the reasons for this?
- 6 Sometimes children change in ways that cause parents concern During this first year in school did _____ change or behave

in any way that bothered you or made you worry? What were the reasons for this? What did you do about it?

7. What can you say about how _____ got along with the teacher?
8. What did you think about the way in which the teacher understood and handled _____?
9. How did _____ get along with the other children in the class?
Did he make new friends?
Were there children with whom _____ did not get along well?
Were there any children with whom you did not want him to associate?
10. Children usually have some complaints about school such as the teacher, the children, what they do, or the school itself. Do you remember what _____ complaints were during the first year?
11. How many times during that first year did you talk to _____ teacher? What did you talk about with the teacher?
12. (If there was an older sib in school): When you think of _____ first year in school and _____ first year in school, what differences were there between the two children? (Compare with other children if no older sibs.)
13. Parents sometimes have asked this question: "When my child says 'I don't want to go to school today,' what should I do?" What would your advice be?
(If the answer involves "talking" to the child, ask): But what would your advice be if talking to him doesn't help?
14. We have found that many children worry about how well they do in school. In that first year did _____ ever say or do anything that made you think that he worried about how he was doing in school?
15. How much attention do you think the teacher should pay to reading and arithmetic in the first year?
16. Do you read with _____?
 - a. very little
 - b. frequently when younger
 - c. very often
 - d. once in a while
17. That year did _____ have habits such as
 - a. nail biting
 - b. thumb sucking

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c bed wetting

d nose picking

e any others?

- 18 Of all the things that happen in school, which part would you say _____ liked best?
- 19 What was it about school that _____ liked least?

Section C (Other School Years)

- 1 Who is _____ teacher now?
- 2 How did _____ feel about starting school this year?
- 3 How does he get along with his present teacher in comparison to the teachers he had before?
(If any differences or difficulty are indicated, determine *reasons, consequences, and parental reactions and role*) (If none, why not?)
- 4 How does _____ get along with the children in his class now?
- 5 What important change have you noticed in _____ since he started school? What was the reason for this?
What was another important change you noticed? Reasons
- 6 Since his first year in school has _____ changed or behaved in any way that bothered you or made you worry? What were the reasons for this? What did you do about it? Get examples
- 7 Since his first year in school what kinds of complaints has _____ had about school?
- 8 About reading, would you say _____ had
 - a no trouble at all learning to read
 - b some trouble
 - c a lot of trouble(If some or a lot of trouble is indicated, determine *nature, reasons, teacher handling, parental role*)
(If none indicated, how come, prefaced by interest in reasons for no problem as well as in problems)
- 9 Since his first year of school, has _____ ever said or done anything that made you think he worried about how well he was doing in school?
What made you think he worried?
- 10 What has it been about school that _____ liked best?
- 11 What has it been about school that _____ liked least?
- 12 When _____ goes to school would you say
 - a he likes going to school

- b he's neither happy nor sad about going to school
 c he'd probably rather not go to school
 d it's hard to tell how he feels about that
- 13 When you think back when you were _____ age and going to school, what are the differences between what schools are to day and what they were then?
- 14 When _____ comes home from school how much does he tell you about what has gone on in class?
- a He tells a lot
 b He tells a little
 c He says nothing
 (If the answer is a lot or a little) Can you give me an idea of what he would say?
 (If answer is nothing) Why do you think he would not talk about school?
 Has he always been this way?
- 15 Some people have said that children today are very different from children years ago What is your opinion on this?
- 16 What illnesses or accidents has _____ had?

Illnesses	Age	Hospitalized for	Duration
Measles	_____	_____	_____
Mumps	_____	_____	_____
Chicken pox	_____	_____	_____
Pneumonia	_____	_____	_____
Allergies	_____	_____	_____
Tonsils	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

- Did it interfere with his progress in school?
- 17 When _____ is out of school because of illness would you say
- a he worries a lot about missing his lessons
 b he worries a little about missing his lessons
 c he doesn't worry at all about missing his lessons
 d Has this always been the case?
- 18 Has _____ been out of school for a while for any other reason?
- 19 How frequently does _____ bring home work he has done in class?

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- What does _____ say when he brings this work home?
 What do you say? (Recent example)
- 20 How does _____ feel about homework?
 Do you ever help him?
 (If answer is to the effect that child is not given homework)
 How do you feel about that?
- 21 What do you do if _____ does no homework?
- 22 Since his first year of school have you had any talks with _____ teachers? About what?
- 23 Have you gone to PTA meetings? How do you feel about what you have gotten from PTA meetings?
- 24 Some people have said that teachers are not strict enough with their pupils. What is your opinion of that?
- 25 How did _____ spend last summer?
- 26 Would you say that _____ was
 a happier in the summer than when going to school
 b just as happy
 c less happy
 How come?
- 27 Has _____ ever been away from the family overnight or longer? How come? What happened?
- 28 (If there are any younger sibs) How did _____ react when you were in the hospital for _____ birth? (Determine child's feelings and behavior and preparation and handling of any problems by parents)
- 29 Have you ever been away for any reason from _____ for more than a day? How come? What happened?
- 30 Has your husband ever been away for any reason from _____ for more than a day? How come? What happened?
- 31 Some people have said that children should go to school for eleven months instead of ten months. How do you feel about that?
- 32 Do you think _____ has learned
 a more than you expected of him
 b as much as you expected of him
 c less than you expected of him
 (If first or third is answered) How come?

SECOND INTERVIEW

- 1 Last time we talked about how _____ felt about school. This time we would like to get a clear picture of what _____ is like as a person. How would you describe _____ so that

- n person like myself who doesn't know _____ would get an idea of the kind of child _____ is?
2. The adjective check list found in Appendix H was the second item in this interview
 3. In what ways is _____ different now from the way he was a couple of years ago?
 4. What about when he was even younger—say when he was two or three years of age? In what ways was he different from the way he is now?
 5. Parents want their children to behave differently or change their habits and attitudes in some respects. What changes have you tried to have _____ make in the way he behaves or in his habits or personality?
 6. What is the one thing about _____ that you admire most?
 7. What is the one thing about _____ that you admire least?
 8. What would you say are the things—the events happenings—that really make _____ happy?
 9. What would you say are the things that make _____ unhappy?
 10. What kinds of things make _____ angry? How does he act when he is angry? How do you handle this? When did this start? (Get specific example—most recent)
 11. Can you give me another example of what makes _____ angry? How does he act then? How do you handle this? When did it start? (Get specific example—most recent)
 12. In general, when he is angry _____
 - a gets sulky and silent
 - b hits people
 - c throws things
 - d talks angrily
 13. Here is a question we are asked frequently by parents: "When my child does something that he knows I don't like, what should I do about it? How should I act?" What would you tell them? Can you give me an example from the last few days?
 14. What does your husband do when _____ does something wrong?
 15. Parents have to teach their children to be honest. And yet they by themselves can't succeed completely. The child must learn in experience with playmates in school on the job etc. that lying, covering up, or telling half the truth is not the way to behave. So it's a long continuing process. How far would you say _____ has progressed in learning to tell the truth? Get specific recent

- examples of dishonesty How did you handle this? How did _____ react to parent's treatment? Get example of honesty when _____ might have been tempted to lie
- 16 How does _____ act when he gets into a fight with other children? (Get specific, recent example) What did you do?
- 17 What rules do you have for _____ watching TV or going to the movies?
- 18 Who is _____ best friend?
Why do you think _____ likes him best?
How do you feel about this best friend?
- 19 How much has _____ been influenced by how other children think and act (Specific example)
- 20 Would you say _____ cried
a a lot of the time
b some of the time
c very little of the time
(If a lot or very little) How come? What did you do?
- 21 What stands out in your mind about _____ as an infant?
- 22 In the first few months, an infant is not afraid of people and can usually be held by anyone However, at some time in the first year of a child's life, the baby *knows* the difference between his parents and other people and *acts afraid* of these people in various ways, such as crying and wanting to be held by mother or father—or the child no longer freely goes to these other people Do you remember when _____ first acted this way?
How did you handle the situation after that?
How long did it go on?
- 23 Some parents have said that for the first year or year and a half you should not leave the child with other people (e.g., sitter) Other parents have said that if you don't leave the child with other people he will never learn to stay with other people What is your opinion? How did you handle the problem?
- 24 As a baby, was _____
a a very good sleeper
b a fair sleeper
c a bad sleeper
- 25 When _____ was teething he cried
a a lot of the time
b some of the time
c very little of the time
- 26 Some doctors have said that it is best for a baby to be taught to eat and to go to sleep at certain times Other doctors have said it

- is best if a child is fed when he is hungry and goes to sleep when he is sleepy What is your opinion? What did you do?
- 27 How did _____ act when you first took him to the doctor for shots or vaccination?
(If parent does not indicate any crying) Did _____ cry?
- 28 How did _____ feel about seeing the doctor when he was a little older—when he was able to walk? What about now?
- 29 Would you say _____ is
a very much afraid of the doctor
b a little afraid
c not at all afraid
- 30 Would you say _____ is
a very much afraid of the dentist
b a little afraid
c not at all afraid
- 31 How does _____ act when he gets hurt?
- 32 Has _____ ever been in the hospital because he was sick or for any treatment? (List illness age duration preparation and parent and child's reaction)
- 33 Has _____ ever had nightmares? When? What did you do about it?
- 34 Different children seem to be afraid of different things When _____ was much younger what were the kinds of things he was afraid of? (List each fear when it started conditions of arousal parental handling, outcome)
- 35 What are the kinds of things that seem to make _____ afraid now or in the past few years? (List each fear when it started conditions of arousal parental handling outcome)
- 36 Would you say that _____
a tends to worry a lot—a worrier
b tends to worry a little
c tends not to worry at all
- 37 Some people believe that from an early age parents should let children make up their own minds as much as possible Other people believe that children do not know what is best for them and should not be allowed to make their own decisions How do you feel about it?
- 38 I have here a list of things that sometimes frighten children Could you tell me if _____ has been afraid of any of these things?
(Determine when duration parental handling)
a lightning and thunder
b being left alone

- c. elevators or escalators
- d. high places (looking out)
- e. seeing blood
- f. the dark
- g. animals
- h. getting sick
- i. getting lost
- j. certain radio or TV programs or movies
- k. certain kinds of people
- l. not being liked
- m. new situations

39. Has anybody died whom _____ has known well among his family or friends? What effect did this have on him?
40. When you think of the future, how much education would you like _____ to have?
How would you feel if _____ does not finish high school? College?
41. We have found that parents usually have some ideas about the kind of work they would like their child to do. What ideas have you had about the kind of work you would like _____ to do? Does your husband have any preference?
42. Did you have as much education as you wanted? (If not, why not?) How about your husband? How far did you go? Your husband?
43. Husband's occupation, specific for past and present?
- 43a. If you could have been anything you wanted, what work would you have chosen?
44. Have you ever worked since _____ was born? Nature of work? How much? Who took care of _____?
45. Some people have said that too much importance is placed in school on getting good grades and this makes children tense and nervous. Other people have said that if you don't make getting good grades important, children will not do their best. How do you feel about this?

Parent attitude scale (PARI)

APPENDIX G

Read each of the statements below and then rate them as follows

A	a	d	D
strongly agree	mildly agree	mildly disagree	strongly disagree

Indicate your opinion by drawing a circle around the "A" if you strongly agree around the "a" if you mildly agree, around the "d" if you mildly disagree and around the "D" if you strongly disagree

There are no right or wrong answers so answer according to your own opinion. It is very important to the study that all questions be answered. Many of the statements will seem alike but all are necessary

	Agree		Disagree	
	A	a	d	D
1 A child is most lovable when he is small and helpless.				
2 Good parents shelter their children from life's little difficulties	A	a	d	D
3 Children should never learn things outside the home which make them doubt their parents' ideas	A	a	d	D
4 The child should not question the thinking of his parents	A	a	d	D
5 Children who lie to their parents should be spanked for it so they will stop it	A	a	d	D

	Agree		Disagree	
	A	a	d	D
6 Children who are always breaking their parents' rules will remember them after a good whipping				
7 As much as is reasonable a parent should treat a child as an equal	A	a	d	D
8 Parents should adjust to children some rather than always expecting the children to adjust to the parents	A	a	d	D
9 A child should be taught to always come to his parents or teacher rather than to fight when he is in trouble	A	a	d	D
10 Most parents prefer a quiet child to a "scrappy" one	A	a	d	D
11 A good child doesn't fight with other children	A	a	d	D
12 The earlier a child is weaned from its emotional ties to its parents the better it will handle its own problems	A	a	d	D
13 A child should be encouraged to stand on his own feet as soon as possible	A	a	d	D
14 "Matter of fact" treatment of children is better than frequent expression of feeling	A	a	d	D
15 Too much affection will make a child a "softie"	A	a	d	D
16 It's natural for a child to shy away from a parent who shows a great deal of love and tenderness	A	a	d	D
17 Parents who start a child talking about his worries don't realize that sometimes it's better to just leave well enough alone	A	a	d	D
18 If a child has upset feelings it's best to leave him alone and not make it look so serious	A	a	d	D
19 Children who don't try hard for success will feel they have missed out on things later on	A	a	d	D
20 Parents should teach their children that the way to get ahead is to keep busy and not waste time	A	a	d	D
21 A child who is "on the go" all the time will most likely be happy	A	a	d	D
22 A child will be grateful later on for strict training	A	a	d	D
23 Children who are held under firm rules grow up to be the best adults	A	a	d	D

		Agree		Disagree	
		A	a	d	D
24	Strict discipline develops a fine strong character				
25	A wise parent will teach a child early just who is boss	A	a	d	D
26	Children should be given a chance to try out as many things on their own as possible.	A	a	d	D
27	Children should be allowed to learn through their own experiences rather than being told what to do all of the time	A	a	d	D
28	A child should never keep a secret from his parents	A	a	d	D
29	An alert parent should try to learn all a child's thoughts	A	a	d	D
30	Parents should most of all be just another pal to their children	A	a	d	D
31	A child will do what he wants to do no matter what you think you are teaching him	A	a	d	D
32	More parents should teach their children to have unquestioning loyalty to them	A	a	d	D
33	When you do things together, children feel close to you and can talk easier	A	a	d	D
34	Few parents get the gratitude they deserve for all they have done for their children.	A	a	d	D
35	Children should realize how much parents have to give up for them	A	a	d	D
36	A good way to express disapproval of a demanding child is to ignore him	A	a	d	D
37	Most good parents would never consider striking a child for bad behavior	A	a	d	D
38	Spanking a child makes it impossible for him to love and respect his parents	A	a	d	D

Adjective check list (second item of second parent interview)

APPENDIX *H*

Here is a list of words used to describe people. As you can see, they are paired off into opposites and sometimes the words are defined further. We would like you to decide where your child is in terms of each pair. Between each two words are the numbers

3 2 1 1 2 3

Decide which of the two words describes him better and circle one of the three numbers next to that word as follows

- 1 a little more on this side
- 2 definitely on this side
- 3 very much on this side

compared with children of his age

Tall 3 2 1 1 2 3 Short

If _____ is very tall you would circle the 3 right next to the word "tall," if he were a little on the short side you would circle the 1 closest to the word "short," and so on, circling one number for each pair of words

- | | | | |
|-----------------------|-------|-------|------------------------|
| 1 Immature | 3 2 1 | 1 2 3 | Mature |
| acts younger than age | | | acts grown up |
| 2 Sociable | 3 2 1 | 1 2 3 | Withdrawn |
| hates play alone | | | enjoys play alone |
| 3 Anxious | 3 2 1 | 1 2 3 | Unanxious |
| nervous, worries | | | not nervous or worried |
| 4 Pessimistic | 3 2 1 | 1 2 3 | Optimistic |
| expects the worst | | | expects the best |

ADJECTIVE CHECK LIST

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5	Responsible trust to do what told	3 2 1	1 2 3	Avoids responsibility
6	Aggressive fights	3 2 1	1 2 3	Submissive avoids fights, not ag- gressive
7	Feels superior	3 2 1	1 2 3	Feels inferior
8	Hides feelings	3 2 1	1 2 3	Shows feelings
9	Active busy, uses energy	3 2 1	1 2 3	Inactive physically quiet
10	Tense	3 2 1	1 2 3	Relaxed
11	Neat and orderly	3 2 1	1 2 3	Messy and cluttered
12	Follows others imitates	3 2 1	1 2 3	Leads others is imitated
13	Stubborn	3 2 1	1 2 3	Not stubborn
14	Dependent	3 2 1	1 2 3	Independent
15	Generous	3 2 1	1 2 3	Selfish
16	Ambitious always tries to be on top	3 2 1	1 2 3	Unambitious doesn't try to be on top
17	Saves	3 2 1	1 2 3	Does not save
18	Excitable	3 2 1	1 2 3	Depressed quiet, doesn't get ex- cited
19	Eats very little	3 2 1	1 2 3	Eats very much
20	Indoor type	3 2 1	1 2 3	Outdoor type
21	Affectionate	3 2 1	1 2 3	Unaffectionate
22	Adapts to changes	3 2 1	1 2 3	Set in his ways
23	Impulsive doesn't plan with care	3 2 1	1 2 3	Plans with care
24	Sensitive easily upset	3 2 1	1 2 3	Not sensitive not easily upset
25	Takes blame admits errors	3 2 1	1 2 3	Blames others doesn't admit errors

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